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# A Survey of Pilots on the Dissemination of Safety Information

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### A SURVEY OF PILOTS ON THE DISSEMINATION OF SAFETY INFORMATION

#### INTRODUCTION

The dynamic and heterogeneous nature of the aviation industry is such that it is often difficult to develop a coherent understanding of how best to serve the safety information needs of various pilot segments. Aviation safety seminars presented by the Federal Aviation Administration (FAA) and other groups have been one method of providing safety-oriented information to pilots. However, the effectiveness of such programs may be debated, as voluntary attendance is often low. This suggests that the current mechanisms for the dissemination of safety information may not be meeting the particular needs of a significant number of pilots.

Previous evaluations of the pilot population have been designed primarily to examine the nature of the pilot population as a type of "snap shot" for subsequent comparisons (See Hunter, 1995). In general, the primary focus has rested upon the identification of safety-related behavior, rather than mechanisms through which unsafe behavior can be altered.

The objective of the present research was to identify pilot perceptions of safety-related information, including its usefulness within the operational environment, its role in accident causation and prevention, and the process through which safety-related information might be better disseminated to them. This study is a part of a larger research program designed to develop and disseminate aviation-related safety information to the pilot population in general. The specific goal was to determine the most effective strategies through which a broad range of pilots could be provided with relevant, innovative safety information using methods that fit the various learning styles of the population.

#### Segmentation of the Pilot Population

Because their experience and flying environments are quite different, private, commercial and airline transport pilots are likely to require different types of safety information. Moreover, it was considered unlikely that all pilots could be served effectively through the same mechanisms of information dissemination;

that is, some methods are perhaps more appropriate for certain types of pilots. Educators know that individual learning styles vary considerably across the population. Some people learn best from lectures, some from computers, some from discussions, and still others learn best from reading.

On the basis of these factors, it was considered appropriate to segment the pilot population into subgroups that share similar characteristics in terms of experience and knowledge. The participants were thus divided into three groups on the basis of the license that they held when they were sampled. Other variables, such as a pilot's primary FAA region, recency of experience, and involvement in aircraft accidents, were used to further segment the population.

Segmentation of the pilot population also facilitated the examination of safety habits among the various pilot subgroups. Consistent with Hunter (1995), this kind of information was considered useful in establishing a profile of "at risk" pilot subgroups that coincided with appropriate safety intervention efforts.

#### **METHOD**

#### Questionnaire Development

The survey questions were developed to meet the objective of the study, which was to determine how best to bring safety information to the various segments of the general aviation pilot population. Therefore, it was necessary to ask how the population perceives present and proposed future methods of presenting safety. Questions were designed to examine attitudes toward FAA and non-FAA safety seminars (including best times, places, and locations) as well as alternate forms of intervention strategies (i.e., computer use, video use, etc.). Questions relating to the pilot's profile focused upon the acquisition of information relating to the characteristics of pilots including age, gender, education level, and involvement in accidents/incidents. Information from these types of questions would be used to link the responses to questions regarding FAA safety seminars to subgroups of the pilot population.

The questions were arranged in an opticallyscannable questionnaire booklet under the following seven categories:

- Use of Aviation Safety Information
- · Seminars
- Computer/Video Use
- · Self Assessment
- Recent Flying Experience
- Demographic Information
- Stressful Experiences

Four optional open-ended questions, listed at the end of the survey, asked pilots to expand on their stressful flying experiences and solicited suggestions about how to improve aviation safety.

To enhance the response rate, the questionnaire was developed to be quickly understood and easy to complete within approximately 30 minutes. Some compromises in content were necessary to meet this goal as the development effort was carried out. To facilitate the survey development process and gain the best response rate, the Statistical Consulting Service and the Polimetrics Laboratory of the Ohio State University (OSU) were consulted regarding the consolidation and ordering of questions.

#### Pre-testing of the Survey Form

The prototype survey was pre-tested using students in OSU aviation classes and an array of local volunteer private, commercial, and airline transport pilots. The pre-test helped to determine the time required to complete the form. Pilots who participated in the pre-testing also provided valuable feedback on the questionnaire content, resulting in more clearly understood text. In some cases, questions were added and others dropped as pilots offered their own ideas. The final form of the questionnaire was an eight-page booklet (shown in Appendix A).

#### Sampling

A stratified random sample of the pilot population was drawn to represent three pilot groups: private, commercial, and airline transport. The database used to select pilots was the February 1995 Aviation Data CD (Avantex, 1995). This database included all airmen with valid medical certificates on December 31, 1994 who lived within the nine domestic FAA regions. Thus, the sample represented pilots who were active, at least to the point of maintaining their

medical certificate. The primary information source for the CD database was the FAA, which then listed the names and addresses of approximately 240,000 private pilots, 121,000 commercial pilots, and 110,000 airline transport pilots.

The selection procedure was to draw one name for every 120 private pilots, 60 commercial pilots, and 50 airline transport pilots listed. Since the listing was ordered according to FAA region, this selection method produced a sample that was relatively characteristic of each regional population with approximately the same number of private, commercial, and airline transport pilots per region. The final sample consisted of 2,005 private pilots, 2,008 commercial pilots, and 1,973 airline transport pilots. Equal numbers of each certificate type were chosen instead of proportions of the actual total population (51%, 26%, and 23% for private, commercial, and airline transport, respectively) because the concern was to control sampling error by obtaining a suitable number of completed surveys from each population segment of interest.

#### Survey Procedure

Following the recommendations of Dillman (1978), pre-notification postcards were sent to all pilots in the sample, notifying them that they had been selected and requesting their participation. Approximately one week later, the survey packets were sent to the 2,000 pilots in each of these three groups. After considering the various options for follow up to improve response, it was decided that within the budget and time constraints of the study, a single mailing of another complete survey packet to the sample of pilots would offer the most effective means to improve responses. Accordingly, four weeks after the initial mailing, additional survey packets were sent out to 4,000 pilots randomly selected from among those (approximately 5,000) who had not responded. Approximately equal numbers of pilots from each of the three license categories were selected for this follow up. The figure of 4,000 was arrived at by estimating, a priori, the number of non-responding pilots that would remain after the first mailing. However, the response rate failed to meet our initial expectations, and only about 1,000 responses had been received prior to the second mailing. This left approximately 5,000 non-respondents and (because all the surveys had been printed at the same time) only 4,000 questionnaires available to be sent out. Therefore, the follow up second mailing of the survey packet was limited to approximately 80% of the nonrespondents.

The survey packet included a cover letter and a letter of endorsement. The cover letter urged recipients to respond to the survey, stressing the benefits of the survey, its 30-minute completion time and the confidentiality of responses. This cover letter was signed by the Ohio State University study director. The letter of endorsement stressed the significance of each pilot's response in contributing to aviation safety and was signed by the presidents of the Aircraft Owners and Pilots Association, Experimental Aircraft Association, General Aviation Manufacturers Association, and Small Aircraft Manufacturers Association. In addition, the survey packet included one copy of the survey and a 9"x12" pre-paid, business reply envelope.

Mailing

The first mailing of the 5,988 surveys was dispatched on March 27, 1995. Following the initial mailing, 146 survey packets were returned undelivered, including 46 from private pilots, 56 from commercial pilots, and 44 from airline transport pilots. On April 18, 1995, 146 replacement surveys were mailed to an additional sample of pilots from each of the three categories not represented in the initial mailing.

To keep track of those pilots who had responded for second mailing purposes, sequential numbers were assigned to the return envelopes. These numbers corresponded to those printed next to the names of pilots on the address labels. Thus, each pilot had a number and the return of their questionnaire prompted elimination from the second mailout list. Since the numbering system suggested a means through which to track the responses of pilots, recipients had to be assured of the confidential nature of the survey. Consequently, the cover letter accompanying each questionnaire stated that once received, the questionnaires would be immediately separated from the return envelopes and combined with those from thousands of other pilots prior to data processing or tabulation.

#### Return Rates

Of the 5,988 surveys distributed, 1,822 were returned. This represented a response rate of 30.4%, and is consistent with that previously obtained by

Hunter (1995). Ten questionnaires were either lost in transit or received too late to be included in the data analysis.

The response rate across license categories was relatively consistent across the three segments of the pilot population. The response rates for private, commercial, and airline transport certificate holders were 31.3%, 34.2%, and 34.5%, respectively. Thus, there were approximately 600 respondents for each of the three certificate categories. That size sample provides a sampling error 95% confidence interval of ± 4%.

Because of the substantial proportion (70%) of non-respondents, we must be concerned with the possibility of non-response bias that may occur when members of the sample differentially choose to respond or abstain based upon characteristics germane to the purpose of the survey. It is incumbent upon the researchers, in such a situation, to demonstrate to the degree possible, that such an effect has not taken place. Generally, this takes the form of comparisons of respondents with non-respondents or with the general population for such measures of interest as may be available, and the latter is the approach taken here.

Since data are not available for those pilots who did not respond, we are limited to comparing the respondents to the pilot populations from which they were drawn. However, only limited data are available for the pilot population. Two available measures are age and gender, and the sample of respondents are compared to the population for each of those variables in Table 1 (age) and Table 2 (gender). The results in Table 1 show that the sample of respondents were uniformly (and significantly) older than the populations from which they were drawn. Hence, we might suspect that any variables of interest in our survey that correlate with age might be biased. One obvious measure would be flight time. Generally, one might expect total flight time to be positively correlated with age. Therefore, the data presented later on total flight time may be somewhat inflated, compared with the true population figures, because the respondents to this survey are somewhat older.

An examination (using Chi-Square) of the proportion of male and female pilots in the general population and among the survey respondents was not significant. Thus, there appeared to be no differential proclivity to participate in the survey attributable to gender differences.

Table 1. Age of survey respondents and pilot population.

|                   | Mean - Respondent<br>Sample | Mean - Population |  |  |
|-------------------|-----------------------------|-------------------|--|--|
| Private           | 46.6                        | 42.7              |  |  |
| Commercial        | 45.7                        | 41.9              |  |  |
| Airline Transport | 45.7                        | 44.1              |  |  |

Note: All differences significant (t > 1.96, p < .05).

Table 2. Gender of survey respondents and pilot population.

|                   | Survey Respondents |        | Population |        |                |
|-------------------|--------------------|--------|------------|--------|----------------|
| <b>D</b>          | Male               | Female | Male       | Female | X <sup>2</sup> |
| Private           | 93.2               | 6.8    | 94.1       | 5.9    | 0.94           |
| Commercial        | 94.2               | 5.8    | 95.7       | 4.3    | 3.08           |
| Airline Transport | 96.4               | 3.6    | 97.4       | 2.6    | 2.7            |

Note: All  $X^2$  (df = 1) nonsignificant (p > .05)

Table 3. Responses by FAA region.

| Region                | Number of  | Percent of | Number of Pilots    | Doront of Dilet   |
|-----------------------|------------|------------|---------------------|-------------------|
|                       | Responses  | Responses  | radifiber of Filots | Percent of Pilots |
| Alaska                | 41         | 2.4%       | 9404                | 1.5%              |
| Central               | 96         | 5.6%       | 31853               | 5.1%              |
| Eastern               | 249        | 14.5%      | 83220               | 13.2%             |
| Great Lakes           | 313        | 18.3%      | 108139              | 17.1%             |
| New England           | <b>7</b> 5 | 4.4%       | 29653               | 4.7%              |
| Northwest<br>Mountain | 160        | 9.3%       | 65859               | 10.4%             |
| Southern              | 269        | 16.1%      | 117834              | 40.70/            |
| Southwest             | 230        | 13.4%      | 75692               | 18.7%             |
| Western Pacific       | 279        | 16.3%      | 108898              | 12.0%<br>17.3%    |

Table 3 presents the number and proportion of respondents from each of the nine FAA regions.

This table also gives the number of pilots in each region and the proportion of the national total.

Recall that the sample was stratified on FAA regions; hence, the approximately equal proportions of pilots in the respondent sample and in the regions indicate there was little differential responding by regions.

In summary, slightly less than one-third of the pilots elected to take part in the survey. Caution is therefore required in interpreting the results because of the potential for non-response bias. Since we have no data on the non-respondents, other than that summarized above, we cannot say with certainty whether the results are biased. Other than the age effect noted earlier, there is no a priori reason to believe that bias is present. However, readers must keep in mind that the data in self-report surveys, particularly when based upon less than a large percentage of the potential respondents, always involve a degree of uncertainty.

#### RESULTS

The frequency of response to each alternative for all questions comprising the survey is provided in Appendix B for each of the three certificate levels. In addition, Appendix B provides the responses for a group (labeled Target Group) comprised of private pilots and commercial pilots who have never flown for hire. Previous research (Hunter, 1995) has indicated that a substantial proportion of commercial pilot certificate holders do not engage in commercial flying activities. Rather, they acquire a commercial certificate as a means of increasing their flying skills and, possibly, their status in the flying community. Members of this group of non-professional commercial certificate holders are very much like private pilots in many respects in terms of their demographics, flying activities and training event participation. Hence, like the private pilot certificate holders, they are the prime target group for FAA-sponsored safety seminars and other safety-related training.

Since the objective of this effort is to develop a better understanding of how to disseminate training information, the subsequent analyses will focus on this group of private and commercial pilots whose primary source of safety-training information is likely to be FAA-sponsored programs. We have defined this target group as consisting of all private pilots (N = 602) and all commercial pilots (N = 193) who reported (in Question 39) that they had never flown as a commercial pilot for hire. The total available for analysis is, therefore, 795.

Three sets of analyses are presented below. First, we provide general demographic and experience data for the target group. Second, we divided the target group into two subgroups: (1) those who had attended a FAA-sponsored safety seminar within the previous 12 months, and (2) those who had not. The responses of these two groups to certain of the questions are compared to provide information on characteristics associated with seminar attendance. Finally, we divided the target group into two subgroups: (1) those who had been in an aircraft accident (involving damage to an aircraft), and (2) those who had not. The responses of these two groups are compared to provide information on characteristics associated with accident involvement.

#### Target Group Characteristics

Age. Overall, the mean age of respondents in the target group was 48 (SD = 14) and ranged from 20 to 89 years. For purposes of interpretation and comparison, the age-related data were categorized into tenyear segments. The frequency distribution indicated that the largest proportion of respondents were aged from 41 to 50 years of age (see Figure 1).

These data are comparable with published FAA data (Lampl, 1996) in which the largest proportion of pilots (26.6%) is aged from 41 to 50 years. However, as noted earlier, pilots responding to the questionnaire are slightly (but significantly) older than would have been expected on the basis of the population.

Gender. In the target group, 94% of the sample were males, and 6% were females.

Education Level. As a part of the process of determining the capabilities of the pilot population, respondents were asked to indicate the highest educational level they had attained. The frequency distribution (see Table 4) indicated that the majority of respondents had obtained at least a college degree.

Accidents. Of the pilots in the target group, 2% indicated that they had been involved in an aircraft accident resulting in damage to property (other than the aircraft), and 2% had been involved in an aircraft accident resulting in personal injury.

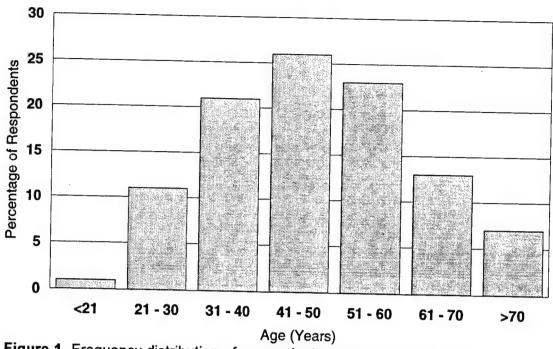


Figure 1. Frequency distribution of respondents across age categories.

**Table 4.** Educational level of respondents in the target group.

| Highest Completed   | Percent |
|---------------------|---------|
| Grade School        | 1%      |
| High School         | 21%     |
| Associate Degree    | 16%     |
| College Degree      | 35%     |
| Master's Degree     | 18%     |
| Professional Degree | 10%     |

Fifteen percent of pilots reported being involved in aircraft accidents resulting in damage to the aircraft. This figure is relatively larger than that evident in either of the previous categories, and is consistent with accident and incident statistics which show that most accidents or incidents involve damage only to an aircraft with little or no damage to either personnel or property.

Number of Stressful Situations in the Last 12 Months. Considerable anecdotal evidence suggests that stressful experiences play a major part in both incidents and accidents and may contribute significantly to pilots' subsequent use of safety-related information (Jensen, 1995). Such stressful experiences may range from life stressors, such as a death or divorce, to more task-related stressors, such as passenger or job-related demands.

Forty-six percent of pilots indicated that they had experienced a stressful aviation event during the 12 months prior to completion of the survey.

For those pilots in the target group who reported having a stressful event, the distribution of factors contributing to the event are given in Table 5.

Analysis of the types of stressful events experienced by pilots revealed that weather is the primary factor contributing to stressful events during flights, followed closely by mechanical problems with the aircraft. Mistakes attributed to pilots in other aircraft also account for a substantial number of stressful events, as do bad decisions made by the pilots themselves.

Self-Assessment of Pilot Knowledge. Pilots were asked to rate their level of knowledge or proficiency in 12 areas using a 5-point scale from "Poor" (1) to "Excellent" (5). Table 6 presents the mean self-ratings from the target group for the 12 knowledge and proficiency areas.

Topics Presented at FAA Seminars. As a means of determining the relative usefulness of topics presented at FAA seminars, respondents were asked to indicate whether a particular topic was presented at the last FAA safety seminar they attended, and further, to indicate the relative usefulness of the topic. The mean usefulness ratings (1 to 5 scale, higher scores indicate higher usefulness) for the topics are listed in Table 7. In addition, the frequency of pilots who indicated that these topics were presented at the last FAA safety seminar they attended is given.

Table 5. Frequency of factors contributing to stressful events.

| Factor                                 | None | 1 - 2 Times | 3 or More Times |
|--|------|-------------|-----------------|
| Fuel problems                          | 86%  | 12%         | 2%              |
| Mistakes by other pilots               | 69%  | 24%         | 7%              |
| Navigational problems                  | 82%  | 16%         | 1%              |
| Physiological problems (i.e., illness) | 88%  | 10%         | 2%              |
| Family commitments                     | 93%  | 6%          | 1%              |
| Passenger requirements                 | 91%  | 9%          | 0%              |
| Job-related demands                    | 89%  | 8%          | 3%              |
| A bad decision                         | 74%  | 22%         | 4%              |
| Mechanical problem with airplane       | 57%  | 37%         | 6%              |
| Weather                                | 51%  | 42%         | 7%              |
| Other                                  | 72%  | 23%         | 5%              |

Table 6. Mean self-assessments of knowledge and proficiency.

| Tubic of Modification            |                         |
|----------------------------------|-------------------------|
| Knowledge & Proficiency Area     | Mean Self-Rating (S.D.) |
| Ground handling                  | 4.1 (0.74)              |
| Basic VFR flying techniques      | 4.1 (0.72)              |
| Navigation                       | 4.0 (0.78)              |
| Preflight planning               | 4.0 (0.76)              |
| Takeoff and landing procedures   | 4.0 (0.75)              |
| Aviator decision making          | 3.9 (0.78)              |
| Human factors                    | 3.7 (0.83)              |
| Weather and its impact on flight | 3.7 (0.92)              |
| Air traffic control procedures   | 3.5 (0.93)              |
| Air space regulations            | 3.3 (0.87)              |
| Emergency procedures             | 3.3 (0.85)              |
| Instrument flying procedures     | 2.7 (1.25)              |
|                                  |                         |

**Table 7.** Frequency of pilots who indicated that various topics were presented at safety seminars and the mean usefulness associated with each topic presented.

| Topic                             | N   | Mean Usefulness (S.D.) |
|-----------------------------------|-----|------------------------|
| Air Space Classification          | 222 | 3.81 (1.05)            |
| Pilot Decision Making             | 184 | 3.78 (0.97)            |
| Operation Procedures (IFR or VFR) | 178 | 3.75 (0.95)            |
| Weather                           | 179 | 3.72 (1.08)            |
| Human Factors                     | 162 | 3.72 (1.05)            |
| Air Traffic Control Procedures    | 175 | 3.70 (1.02)            |
| FAA Regulations                   | 222 | 3.57 (0.99)            |
| Takeoffs and Landings             | 102 | 3.49 (1.14)            |
| Aircraft Systems                  | 61  | 3.30 (1.19)            |

Inspection of the mean ratings of usefulness associated with each topic indicates that pilots perceived air space classification and pilot decision-making as the most useful topics examined during seminars. Pilots indicated that the least useful of the seminar topics were aircraft systems and takeoffs and landings. Overall, the mean usefulness of the topics examined during FAA seminars was 3.6, which can be regarded as moderately useful along the five-point scale.

Location and Structure of FAA Safety Seminars. For most pilots, the preferred location for FAA safety seminars was a fixed-base operator (FBO) or flying club (33%), followed closely by a school or college classroom (27%). The least popular location was a friend's house (<1%).

In terms of class size, the majority of pilots (76%) selected between 10 and 50 participants, while considerably less support was indicated for seminars with 50 to 100 participants (15%), less than 10 participants (7%), and greater than 100 participants (3%).

The preference for a particular day on which to hold a FAA safety seminar was less clear although pilots preferred not to have seminars on either Fridays or Sundays (See Table 8).

On the basis of these results, it would appear that either Wednesday or Saturday would be the preferred day on which to hold FAA safety seminars. In terms of the time of day, the majority of respondents selected the evening (70%), rather than the morning (19%) or the afternoon (11%).

The majority of respondents considered 60 to 90 minutes (61%) to be the optimal duration of FAA safety seminars. There was considerably less support for 30 to 60 minutes (22%), more than 90 minutes (17%), or less than 30 minutes (1%).

Use of Computer Technology. Overall, 71% of respondents indicated that they had used a computer at home, while 36% indicated that they were likely to purchase a computer during the 12 months following

Table 8. Preferred day for seminars.

| Day of Week | Percent |  |  |
|-------------|---------|--|--|
| Monday      | 10%     |  |  |
| Tuesday     | 16%     |  |  |
| Wednesday   | 24%     |  |  |
| Thursday    | 13%     |  |  |
| Friday      | 7%      |  |  |
| Saturday    | 27%     |  |  |
| Sunday      | 5%      |  |  |

the survey. Seventy-nine percent of pilots indicated that they would certainly (41%) or possibly (38%) use an interactive, computer-based safety program provided by the FAA.

The majority of respondents indicated that they would purchase a copy of the program from the FAA, and about half (45%) were willing to pay \$10 to \$30 for a copy.

There was some disagreement in terms of the optimal method through which to obtain a copy of the computer program. Twenty-two percent of respondents indicated that they preferred to download the program from the Internet; 3% indicated that they preferred to purchase a copy at their local computer store; 47% of respondents indicated that they preferred to mail order a copy; and, 20% indicated that they preferred to purchase a copy from their local FBO.

In terms of the types of computers used by respondents, 11% indicated that they had access to a Macintosh computer, 60% indicated that they had access to an IBM-compatible computer, 46% of respondents indicated that they had a computer equipped with a diskette drive, 23% indicated that they had access to email, and 31% of respondents indicated that they had a computer equipped with a CD-ROM.

Use of Video Technology. The use of video technology is becoming more and more widespread as a means of improving aviation safety and pilot proficiency. Overall, 60% of respondents indicated that they had watched a video related to aviation safety. Moreover, 92% of respondents indicated that they would either certainly (52%) or possibly (40%) be prepared to watch an aviation safety video prepared by the FAA.

The responses regarding the optimal process through which to acquire videotaped material were relatively consistent across the options with 21% and 24% of respondents indicating that they would prefer to access aviation safety videos via their local Flight Standards District Office (FSDO) or video rental store, respectively. Thirty-four percent of respondents indicated that they would prefer to acquire a video from their local library, while only 3% indicated that they would prefer to acquire an aviation safety video from their local grocery store.

Consistent with previous results (Hunter, 1997), half of the pilots were willing to spend between \$5.00 and \$10.00 to purchase a copy of an FAA aviation safety video, and 90% would pay \$3.00 or more to rent a video.

## Comparative Analysis - FAA Safety Seminar Attendees and Non-attendees

#### Factors that Influence Seminar Attendance

Two of the primary aims of this research were to determine the frequency with which pilots attended FAA safety seminars, and to determine strategies through which attendance and learning among pilots could be improved. Initial frequency analyses revealed that 59% of respondents in the target group indicated that they had not attended a FAA-sponsored seminar during the 12 months prior to completion of the survey, while 21%, 12%, and 8% had attended 1, 2, and 3 or more seminars, respectively.

To determine the reasons associated with seminar attendance, the sample was divided into two groups on the basis of their attendance of at least one seminar during the 12 months prior to testing. Analyses were then conducted that compared the two groups on: (1) the perceptions of pilots regarding FAA-sponsored seminars; and, (2) factors that affect their attendance decision.

In the tables that follow, the means and standard deviations of the ratings for the two groups are given. The differences between the means are compared using a t-test, and the value of the obtained t-statistic is given, along with the exact significance of that tstatistic (Computed by SPSS for Windows, Version 8.0). Because of the large number of comparisons, Bonferroni adjustments to the significance levels were also computed and are given in each table. The Bonferroni adjustments were arrived at by simply multiplying the obtained exact significance by the number of comparisons in that particular table. Although the Bonferroni procedure is rather conservative, it serves fairly well in controlling the overall Type I error rate in a set of comparisons. However, it also produces some probability values greater than 1.0, by virtue of multiplying the obtained probabilities by the number of comparisons. In those cases the reader may simply consider that it is unlikely that the obtained results represent any true difference in the population.

The pilots were asked to indicate on a five-point scale their perceptions of several aspects of FAA safety seminars. Verbal anchors were provided for each scale. Table 9 presents the mean ratings on each scale for the attendee and non-attendee groups, along with

the verbal anchors used in each scale. The attendees and non-attendees differed significantly on their perceptions of four aspects of FAA seminars. Compared with non-attendees, seminar attendees perceived FAA seminars as being more interesting, well publicized, and well organized. In addition, attendees believed that pilots attend seminars to learn, as opposed to socialize.

Respondents were asked to rate ten factors on a five-point scale from "not important" (1) to "very important" (5) in terms of the extent to which each factor influenced the decision to attend a safety seminar. As shown in Table 10, only the factor of "Other Priorities" showed a significant difference between attendees and non-attendees. Non-attendees indicated that this factor affected their attendance decision more than did attendees.

Prior to developing strategies that would encourage pilot attendance at seminars in the future, it is important to ascertain the factors that motivate pilots to attend safety seminars. This information would provide important guidelines for the development of strategies to encourage pilots to attend safety seminars on a more frequent basis.

Table 11 shows a contrast between the concerns of seminar attendees and non-attendees regarding the best way to improve seminar attendance. Specifically, attendees are concerned about getting more exciting presentations (selected by 25% of attendees) while non-attendees expressed the most concern over providing a better meeting location (23%). These results are consistent with previous observations that there is a requirement for more exciting, interesting and relevant topics, presented in a venue that does not require significant "effort" for attendance.

#### Seminar Format

To determine the optimal nature of the format for safety seminars, respondents were asked to indicate their preferred safety seminar format. This provided the basis for the frequency distribution of responses in Table 12.

Clearly, the results shown in Table 12 indicate that respondents in both groups preferred "lectures by experts" as the optimal format for safety seminars. Video or slide presentations were the next preferred format, with the preferences of the two groups being virtually identical.

Table 9. Perceptions of seminar attendees and non-attendees regarding FAA safety seminars.

|  | Attended N          |     |      |      |        |       | ilais.                  |
|--|---------------------|-----|------|------|--------|-------|-------------------------|
|  | Attended<br>Seminar | N   | Mean | S.D  | t-test | р     | Bonferron<br>Adjusted-p |
| FAA seminars primarily are designed for  |                     | 436 | 4.49 | .88  |        |       | , rajusteu-p            |
| FAA seminars primarily are designed for  | No                  | 436 | 4.49 | .88  |        |       |                         |
| (Poor PilotsAll Pilots)                  | Yes                 | 315 | 4.55 | .78  | 1.017  | 200   | 0.40                    |
| The presentations at FAA seminars are    | No                  | 420 | 3.42 | 1.04 | 1.017  | .309  | 2.16                    |
| (BoringInteresting)                      | Yes                 | 315 | 3.70 | .96  | 3.769  | .0001 | 0007                    |
| The topics discussed at FAA seminars are | No                  | 421 | 3.12 | .71  | 0.705  | .0001 | .0007                   |
| Too ComplexToo Easy)                     | Yes                 | 314 | 3.17 | .61  | 0.976  | .329  | 0.00                    |
| he material presented at AA seminars is  | No                  | 417 | 2.87 | .92  | 0.970  | .329  | 2.30                    |
| RepetitiveInnovative)                    | Yes                 | 314 | 2.92 | .97  | .763   | .445  | 2 115                   |
| Most pilots go to FAA eminars to         | No                  | 421 | 3.73 | 1.09 | .,,00  |       | 3.115                   |
| SocializeLearn)                          | Yes                 | 313 | 3.96 | .93  | 3.020  | .003  | 00                      |
| Most FAA seminars are                    | No                  | 426 | 3.29 | 1.30 | 0.020  | .003  | .02                     |
| PoorlyWell Publicized)                   | Yes                 | 312 | 3.68 | 1.24 | 4.099  | .0001 | .0007                   |
| Most FAA seminars are                    | No                  | 420 | 3.58 | 1.04 |        | .0001 | .0007                   |
| PoorlyWell Organized)                    | Yes                 | 313 | 3.90 | 1.01 | 4.148  | .0001 | .0007                   |

Table 10. Factors affecting attendance decision by seminar attendees and non-attendees.

|                     | Attended | N   | Mean  | S.D  | t toot |       | D          |
|---------------------|----------|-----|-------|------|--------|-------|------------|
| _                   | Seminar  | • • | Modif | 3.0  | t-test | р     | Bonferron  |
| Time                | No       | 426 | 4.21  | 1.14 |        | -     | Adjusted-p |
| • •                 | Yes      | 283 | 4.00  | 1.12 | 2.396  | .017  | 47         |
| Money               | No       | 416 | 2.82  | 1.42 | 2.000  | .017  | .17        |
|                     | Yes      | 278 | 2.62  | 1.34 | 1.884  | .060  | 60         |
| nterest             | No       | 420 | 4.33  | .80  | 1.004  | .000  | .60        |
|                     | Yes      | 286 | 4.31  | .81  | 0.244  | .807  | 8.07       |
| Motivation          | No       | 404 | 3.84  | 1.05 | 0.244  | .007  | 6.07       |
|                     | Yes      | 273 | 3.79  | 1.03 | 0.630  | .529  | 5.29       |
| Effort              | No       | 402 | 3.53  | 1.11 | 0.000  | .523  | 5.29       |
| 211                 | Yes      | 266 | 3.36  | 1.01 | 1.971  | .049  | .49        |
| Other priorities    | No       | 397 | 3.70  | 1.16 |        | .043  | .49        |
| <b>.</b>            | Yes      | 261 | 3.31  | 1.13 | 4.184  | .0001 | 001        |
| Confidence          | No       | 397 | 2.83  | 1.32 | 1.104  | .0001 | .001       |
| S                   | Yes      | 262 | 2.94  | 1.26 | 1.089  | .276  | 2.76       |
| Support from family | No       | 401 | 2.11  | 1.25 | 1.000  | .270  | 2.76       |
|                     | Yes      | 267 | 2.12  | 1.32 | 0.088  | .930  | 9.3        |
| Peer pressure       | No       | 395 | 1.61  | .95  | 3.000  | .500  | 9.3        |
|                     | Yes      | 266 | 1.47  | .86  | 1.930  | .054  | EΛ         |
| ear of failure      | No       | 397 | 1.56  | .96  |        | .054  | .54        |
|                     | Yes      | 268 | 1.46  | .84  | 1.423  | .155  | 1.55       |

Table 11. Best way to encourage future attendance.

|                                    | Total | Attendees | Non-Attendees |
|------------------------------------|-------|-----------|---------------|
| Discuss more relevant topics       | 12%   | 13%       | 12%           |
| Offer more exciting presentations  | 12%   | 25%       | 9%            |
| Provide better meeting location    | 19%   | 13%       | 23%           |
| Set more convenient meeting time   | 9%    | 7%        | 11%           |
| Provide child care                 | 1%    | •         | 1%            |
| Provide better publicity           | 14%   | 9%        | 17%           |
| Get more of my friends to attend   | 1%    |           | 1%            |
| Other                              | 5%    | 4%        | 6%            |
| Do nothing, I will never attend    | 3%    | 1%        | 4%            |
| Do nothing, I always try to attend | 25%   | 37%       | 16%           |

Note: Columns may not sum to 100%, due to rounding.

Table 12. Preferred seminar format.

| Table 12. Preferred seminar format.   | Total | Attendees | Non-Attendees |
|---|-------|-----------|---------------|
| Lectures by experts & question and answer period                              | 55%   | 52%       | 56%           |
| Testimonials by fellow pilots & question and answer period                    | 6%    | 3%        | 8%            |
| Open group discussion   | 2%    | 1%        | 3%            |
| Town meeting format no set agenda, leader answers questions raised by group   | 1%    | 1%        | 1%            |
| Small group discussion on single topic followed by large group discussion     | 3%    | 1%        | 4%            |
| Video or slide presentation followed by discussion                            | 29%   | 37%       | 23%           |
| Practice exam on topic(s) followed by a question and answer period about exam | 3%    | 2%        | 3%            |
| Other   | 3%    | 4%        | 2%            |

These results may be subject to some bias, because respondents may never have been exposed to some of the formats suggested. For example, in an earlier study (Guilkey, Jensen, & Hunter, 1998), responses to the "Personal Minimums" field test indicated a very high acceptance of discussion in small-group formats.

## Comparative Analysis—Accident/Incident Involvement and Safety Training

#### Safety Activities

In addition to attending safety seminars, there are many other activities that pilots could undertake to improve their safety. The first question in the survey asked pilots to indicate (using a 10-point scale) how often during the previous 12 months they had performed several activities that might be related to aviation safety. Table 13 compares the responses of seminar attendees and non-attendees on these safetyrelated activities. Significant differences between the two groups were found for three activities: watching safety videos, reading magazine articles on safety, and reading FAA publications. Differences between the two groups on two of these activities (watching safety videos and reading FAA publications) are easily explained, since these are common elements of FAA safety seminars.

#### Self-Assessments of Proficiency

Pilots were asked to provide a self-assessment of their level of knowledge or proficiency in each of the areas shown in Table 14. Ratings were given on a five-point scale, ranging from "Poor" (1) to "Excellent" (5). Lower values indicate lower proficiency or knowledge. No significant differences were found between the two groups: however, in every comparison, the non-attendees rated themselves as higher (i.e., more proficient or knowledgeable) than the attendees.

Pilots were also asked to compare themselves with other pilots on several factors, using a five-point, Likert-type scale. Responses ranged from "Strongly Disagree" (1) to "Strongly Agree" (5). As shown in Table 15, only one item showed a significant difference between attendees and non-attendees: seminar attendees agreed more strongly that they were willing to study safety than non-attendees.

As noted previously, pilots were asked whether they had been involved in an accident or incident resulting in damage to an aircraft. In the target group, 114 pilots indicated they had been involved in such an accident/incident, while 638 responded that they had not. To examine the relationship between responses to certain of the survey items and accident/incident involvement, two subgroups of the target group were formed based upon reported accident/incident involvement. A series of independent sample mean comparisons between the two groups was then conducted. As before, because of the large number of comparisons, the Bonferroni adjustments to the significance levels are also reported.

#### Use of Safety Resources

The analysis of safety resources was designed to determine the extent to which accident/incident involvement was associated with the utilization of safety-related resources by pilots during the 12 months prior to the survey. The first item in the survey asked how often, over the last 12 months, the pilot had performed any of 10 safety-related activities. Table 16 shows the results of these comparisons.

Of the ten safety-related activities, only "Hired a CFI for training" showed a significant difference between the two groups. Pilots who had not had an accident/incident had hired a CFI more often than those pilots who had been in an accident/incident. The item relating to reading a magazine article on safety approached statistical significance, and the direction of the effect was the same (safer pilots more likely to engage in the activity).

One safety-related activity of prime concern to the FAA is attendance at FAA-sponsored safety seminars. Seventeen percent of the pilots in the target group who had not been to at least one seminar in the previous 12 months reported having been in an accident involving damage to an aircraft, compared with 13% of the pilots who had been to one or more seminars. These results can be compared with those previously found by Hunter (1995). In that study, 13% of pilots in a similarly constructed target group, who had not been to at least one seminar in the previous 12 months, reported being in an accident, compared to 12% of the pilots who had been to one or more seminars. This difference in accident rates

Table 13. Safety-related activities.

|                            | Attended<br>Seminar | N   | Mean | S.D. | t-test | р     | Bonferroni<br>Adjusted –p |
|----------------------------|---------------------|-----|------|------|--------|-------|---------------------------|
| Used a computer flight     | No                  | 445 | 1.89 | 3.21 | 1.284  | .200  | 2                         |
| simulation program         | Yes                 | 313 | 2.19 | 3.19 |        |       |                           |
| Read a book on aviation    | No                  | 444 | 2.34 | 2.92 | 2.566  | .010  | .1                        |
| safety                     | Yes                 | 311 | 2.90 | 3.00 |        |       |                           |
| Viewed a video on aviation | No                  | 436 | 1.32 | 2.09 | 5.783  | .0001 | .001                      |
| safety                     | Yes                 | 310 | 2.26 | 2.34 |        |       |                           |
| Read a magazine article on | . No                | 445 | 6.31 | 3.13 | 4.557  | .0001 | .001                      |
| safety                     | Yes                 | 311 | 7.28 | 2.51 |        |       |                           |
| Hired a CFI for training   | No                  | 446 | 2.31 | 3.07 |        |       |                           |
| 0                          | Yes                 | 308 | 2.87 | 3.02 | 2.462  | .014  | .14                       |
| Read an FAA publication    | No                  | 440 | 3.89 | 3.02 |        |       |                           |
|                            | Yes                 | 310 | 4.95 | 2.87 | 4.808  | .0001 | .001                      |
| Referred to an aircraft    | No                  | 445 | 4.90 | 3.36 | 0.691  | .490  | 4.9                       |
| operating manual           | Yes                 | 312 | 5.06 | 2.98 |        |       |                           |
| Asked another pilot a      | No                  | 447 | 3.64 | 3.24 | 1.512  | .131  | 1.31                      |
| safety question            | Yes                 | 310 | 4.00 | 3.08 |        |       |                           |
| Answered another pilots    | No                  | 446 | 2.69 | 2.97 | 2.284  | .023  | .23                       |
| safety question            | Yes                 | 308 | 3.20 | 3.08 |        |       |                           |
| Used a computer-based      | No                  | 443 | 1.04 | 2.39 | 0.523  | .601  | 6.01                      |
| learning program           | Yes                 | 313 | 1.14 | 2.43 |        |       |                           |

approached but did not achieve significance (Fisher's Exact Test p = .114; one-sided). Similarly, in the current study, the difference between groups approaches but does not achieve statistical significance (Fisher's Exact Test p=.065; one-sided). Table 17 shows the relationship between seminar attendance and accident involvement in more detail. As in the overall test, of course, the differences do not attain statistical significance.

#### Self-Assessment of Knowledge and Proficiency

Pilots were asked to rate their level of knowledge or proficiency as a pilot in each of several areas, using a 5-point scale from "Poor" (1) to "Excellent" (5). Table 18 compares the mean self-ratings of those pilots who had been in an accident with the mean self-ratings of those pilots who had not been in an accident. Significant differences were noted for (1) basic VFR flying techniques, (2) emergency procedures, and (3) weather and its impact on flight. In

Table 14. Self-assessments of knowledge or proficiency.

|                                  | Attended<br>Seminar | N   | Mean | Std.       | t-test | р    | Bonferroni |
|----------------------------------|---------------------|-----|------|------------|--------|------|------------|
| Preflight planning               | No                  | 440 |      | Deviation  |        |      | Adjusted-p |
| gra planning                     |                     | 449 | 4.07 | .79        |        |      |            |
|                                  | Yes                 | 313 | 3.98 | .69        | 1.570  | .117 | 1.40       |
| Ground handling                  | No                  | 447 | 4.11 | .76        |        |      |            |
|                                  | Yes                 | 312 | 4.03 | .70        | 1.542  | .124 | 1.49       |
| Takeoff and landing procedures   | No                  | 444 | 4.05 | .74        |        |      |            |
| •                                | Yes                 | 312 | 3.90 | .73        | 2.706  | .007 | .08        |
| Basic VFR flying techniques      | No                  | 444 |      |            | _,, 00 | 1007 | .00        |
| - word to the hymig teermiques   |                     | 444 | 4.14 | .71        |        |      |            |
|                                  | Yes                 | 310 | 4.08 | .69        | 1.189  | .235 | 2.82       |
| Instrument flying procedures     | No                  | 438 | 2.72 | 1.29       |        |      |            |
|                                  | Yes                 | 303 | 2.60 | 1.17       | 1.321  | .187 | 2.24       |
| Emergency procedures             | No                  | 447 | 3.38 | .86        |        |      |            |
|                                  | Yes                 | 313 | 3.25 | .80        | 2.142  | .032 | .38        |
| Weather and its impact on flight | No                  | 440 |      |            |        |      | .00        |
| and no impact on night           |                     | 446 | 3.68 | .92        |        |      |            |
|                                  | Yes                 | 313 | 3.61 | .90        | 0.914  | .361 | 4.33       |
| Air traffic control procedures   | No                  | 444 | 3.4  | .96        |        |      |            |
|                                  | Yes                 | 313 | 3.48 | .88        | 0.203  | .839 | 10.07      |
| Navigation                       | No                  | 448 | 4.97 | .77        |        |      |            |
|                                  | Yes                 | 310 | 4.03 | .77        | 0.569  | .569 | 6.83       |
| Aviator decision-making          | No                  | 444 | 3.92 | 00         |        |      |            |
|                                  | Yes                 | 311 | 3.82 | .80<br>.72 | 1.684  | .093 | 1 10       |
| luman factors                    |                     |     | 0.02 |            | 1.004  | .053 | 1.16       |
| iuman factors                    | No                  | 442 | 3.72 | .85        |        |      |            |
|                                  | Yes                 | 309 | 3.59 | .80        | 1.989  | .047 | .56        |
| ir space regulations             | No                  | 446 | 3.21 | .91        |        |      |            |
|                                  | Yes                 | 312 | 3.31 | .80        | 1.558  | .120 | 1.44       |

these three areas, and in all other areas except for air space regulations, pilots who had been in an accident rated their level of knowledge and proficiency higher that did the pilots who had not been in an accident.

#### Comparisons With Other Pilots

There were no significant differences found for the two accident involvement groups with respect to comparisons with other pilots (See Table 19).

#### Stressful Events During the Previous 12 Months

The impact of stressful events is often regarded both as an important factor in determining pilot performance during flight and a motivator to learn more about the topic (Air Accidents Investigation Branch, 1988). Comparison of the two accident involvement groups, as shown in Table 20, showed no significant differences on the source of stressful events between the two groups.

Table 15. Self-comparisons with other pilots.

|  | Attended<br>Seminar | N   | Mean | S.D. | t-test | р    | Bonferroni<br>Adjusted-p |
|--|---------------------|-----|------|------|--------|------|--------------------------|
| I am more safety conscious                             | No                  | 443 | 3.81 | .74  |        |      |                          |
| Tall Thore salety schooleds                            | Yes                 | 306 | 3.80 | .73  | 0.299  | .765 | 6.89                     |
| I am more willing to study safety                      | No                  | 443 | 3.62 | .71  |        |      |                          |
| , <u>, , , , , , , , , , , , , , , , , , </u>          | Yes                 | 309 | 3.78 | .76  | 3.004  | .003 | .027                     |
| I do better on FAA written exams                       | No                  | 441 | 3.41 | .83  |        |      |                          |
| , do botto. ott 17 i i i i i i i i i i i i i i i i i i | Yes                 | 309 | 3.43 | .80  | .0286  | .775 | 6.98                     |
| I do better on FAA check rides                         | No                  | 441 | 3.29 | .68  |        |      |                          |
| Tab botton on 170 to meet the                          | Yes                 | 307 | 3.16 | .62  | 2.497  | .013 | .12                      |
| I am willing to do more to be a safe pilot             | . No                | 441 | 3.96 | .70  |        |      |                          |
| Tall Willing to do more to be disease pure             | Yes                 | 310 | 4.03 | .70  | 1.475  | .141 | 1.27                     |
| I have had fewer "close calls                          | No                  | 443 | 3.69 | .85  |        |      |                          |
| Thave had lower stock same                             | Yes                 | 309 | 3.57 | .88  | 1.823  | .069 | .62                      |
| I know more about the causes of                        | No                  | 441 | 3.42 | .79  | 0.083  | .934 | 8.41                     |
| accidents  | Yes                 | 307 | 3.42 | .81  |        |      |                          |
| I am more interested in safety issues                  | No                  | 441 | 3.61 | .72  |        |      |                          |
| Tall filoro intolosios in salety losses                | Yes                 | 306 | 3.69 | .79  | 1.489  | .137 | 1.23                     |
| I take fewer risks when flying                         | No                  | 448 | 4.01 | .77  |        |      |                          |
| I lake lewel fisks whom hymy                           | Yes                 | 310 | 3.99 | .78  | 0.362  | .718 | 6.4                      |

#### VFR Minima

Anecdotal evidence has indicated for some time that VFR pilots who consistently operate in conditions that require an instrument rating are more likely to be involved in an aircraft accident. The aim of this analysis was, therefore, to determine the extent to which pilots have operated in actual or potential instrument meteorological conditions (IMC), and whether this affected accident involvement. As shown in Table 21, no significant differences were found, although the activity "Flown VFR under a 1500 AGL ceiling" approached significance.

#### SUMMARY OF QUALITATIVE RESULTS

A series of open-ended questions was used to provide pilots with an opportunity to describe a situation that altered their knowledge or attitude about flying, and whether this experience resulted in more- or less-cautious behavior. In addition, pilots

were given the opportunity to express their opinions regarding the aviation safety system in general, and the FAA in particular.

#### Question 1

This question was designed to provide pilots with an opportunity to recount a situation which had altered in a significant way either their knowledge or attitude about flying. Seventy-six percent of pilots responded to this question, and there were a number of key themes running through the responses. First, the majority of experiences resulted from unintentional behavior in which pilots were often "caught" unaware by the circumstances. These situations ranged from those that were weather-related, such as,

Two years after receiving IFR rating, flew a Piper PA28-180 into known instrument conditions without a heated Pitot Tube. This was a rental plane that was well equipped for the IMC except for the Pitot tube.

Table 16. Accident involvement and safety-related activities.

|                                       | Damage          | N   | Mean | S.D. | t     | р    | Bonferron  |
|---------------------------------------|-----------------|-----|------|------|-------|------|------------|
|                                       | to an aircraft? |     |      |      |       |      | Adjusted-p |
| Used a computer flight simulation     | Yes             | 111 | 1.37 | 2.83 | 2.371 | .018 | 40         |
| program                               | No              | 636 | 2.15 | 3.25 | 2.371 | .018 | .18        |
| Read a book on aviation safety        | Yes             | 111 | 2.29 | 2.83 | 1.205 | .229 | 0.00       |
|                                       | No              | 632 | 2.66 | 2.99 | 1.200 | .229 | 2.29       |
| Viewed a video on aviation safety     | Yes             | 110 | 1.49 | 2.18 | 1.434 | .152 | 1.50       |
| •                                     | No              | 622 | 1.83 | 2.35 | 1.404 | .152 | 1.52       |
| Read a magazine article on safety     | Yes             | 112 | 6.00 | 3.18 | 2.751 | .006 |            |
| ŕ                                     | No              | 632 | 6.83 | 2.88 | 2.751 | .006 | .06        |
| lired a CFI for training              | Yes             | 110 | 1 65 | 2.45 | 2 444 | 004  |            |
|                                       | No              | 632 | 2.73 | 3.15 | 3.411 | .001 | .01        |
| Read a FAA publication                | Yes             | 110 | 3.98 | 3.02 | 1.426 | 154  | 4 = 4      |
|                                       | No              | 623 | 4.42 | 3.03 | 1.420 | .154 | 1.54       |
| Referred to an aircraft operating     | Yes             | 110 | 4.68 | 3.38 | 1.126 | .261 | 0.04       |
| manual                                | No              | 636 | 5.05 | 3.19 | 1.120 | .201 | 2.61       |
| Asked another pilot a safety question | Yes             | 111 | 3.60 | 3.05 | .945  | .345 | 0.54       |
|                                       | No              | 634 | 3.91 | 3.24 | .545  | .343 | 3.54       |
| Answered another pilots safety        | Yes             | 112 | 3.25 | 3.12 | 1.182 | .237 | 0.07       |
| question                              | No              | 631 | 2.88 | 3.03 | 1.102 | .231 | 2.37       |
| Jsed a computer-based learning        | Yes             | 111 | .99  | 2.33 | 564   | .573 | E 70       |
| program                               | No              | 634 | 1.13 | 2.42 | 004   | .5/3 | 5.73       |

Table 17. Accident involvement and FAA-sponsored seminar attendance.

|                             | attendance.  |             |  |  |  |  |  |  |
|-----------------------------|--------------|-------------|--|--|--|--|--|--|
| Number of Seminars Attended | Damage - Yes | Damage - No |  |  |  |  |  |  |
| None                        | 66%          | 58%         |  |  |  |  |  |  |
| One                         | 21%          |             |  |  |  |  |  |  |
| Two                         | 5%           | 20%         |  |  |  |  |  |  |
| Three                       |              | 14%         |  |  |  |  |  |  |
| Four or more                | 4%           | 6%          |  |  |  |  |  |  |
|                             | 4%           | 2%          |  |  |  |  |  |  |
| $X^2=8.4$ , p = .078 (N.S.) |              |             |  |  |  |  |  |  |

 $X^2$ =8.4, p = .078 (N.S.)

Table 18. Accident involvement and self-assessment of knowledge and proficiency.

|                                  | Damage<br>to an<br>aircraft? | N          | Mean         | S.D.         | t              | р    | Bonferroni<br>adjusted-p |
|----------------------------------|------------------------------|------------|--------------|--------------|----------------|------|--------------------------|
| Preflight planning               | Yes<br>No                    | 112<br>642 | 4.15<br>4.02 | .76<br>.74   | 1.676          | .094 | 1.128                    |
| Ground handling                  | Yes<br>No                    | 112<br>640 | 4.22<br>4.05 | .70<br>.74   | 2.183          | .029 | 0.348                    |
| Takeoff and landing procedures   | Yes<br>No                    | 110<br>639 | 4.16<br>3.97 | .71<br>.75   | 2.494          | .013 | 0.156                    |
| Basic VFR flying techniques      | Yes<br>No                    | 110<br>635 | 4.30<br>4.08 | .64<br>.72   | 2.901          | .004 | 0.048                    |
| Instrument flying procedures     | Yes<br>No                    | 108<br>625 | 2.90<br>2.63 | 1.32<br>1.23 | 2.070          | .039 | 0.468                    |
| Emergency procedures             | Yes<br>No                    | 111<br>641 | 3.58<br>3.30 | .88<br>.82   | 3.221          | .001 | 0.012                    |
| Weather and its impact on flight | Yes<br>No                    | 111<br>641 | 4.04<br>3.61 | .85<br>.90   | 4.639<br>4.826 | .000 | 0.0012                   |
| Air traffic control procedures   | Yes<br>No                    | 111<br>638 | 3.59<br>3.46 | .93<br>.92   | 1.317          | .188 | 2.256                    |
| Navigation                       | Yes<br>No                    | 111<br>640 | 4.32<br>4.03 | .78<br>.76   | 2.431          | .015 | 0.18                     |
| Aviator decision-making          | Yes<br>No                    | 110<br>638 |              | .84<br>.76   | 1.010          | .313 | 3.756                    |
| Human factors                    | Yes<br>No                    | 108<br>635 |              | .91<br>.82   | .164           | .870 | 10.4                     |
| Air space regulations            | Yes<br>No                    | 111<br>640 |              | .91<br>.85   | .045           | .964 | 11.56                    |

No ice was forecasted, however, ice was encountered. Could have been a real serious situation if ceiling was lower. Lost use of instruments for 5 min [S600].

Tried to climb through hole to get on top, ran out of room. Clouds were thicker than I thought. After that I would measure the holes by sunshine on ground, seclines etc [S031].

...to those that were performance-related such as,

Forgot pitot heat in IMC, lost RAM air, gear safety light on (PA28-R) should have had more training on pitot heat [S298].

Single Engine Bonanza, catastrophic engine failure that cracked the case. My attitude was changed/strengthened. As a flight instructor on this flight, with the throw over yoke type of control column, I chose to let the left seat pilot make the approach and land. This was a checkout in this aircraft for insurance purposes, prior to purchase. We were in the last hour of a required 10 hour checkout. Good emergency procedures knowledge, practice, and remaining calm following the procedures gave us a successful outcome [1168].

There were very few cases in which pilots reported that they had deliberately violated regulations or minima.

Second, unexpected or unpredicted weather conditions contributed significantly to pilots developing more conservative minima when dealing with inflight weather conditions. For example,

On one occasion, I ventured on a short (55 mile) cross-country flight to satisfy my private pilot requirements. Weather was acceptable but not great because of a haze layer. I had traveled the route twice previously with no problems. I thought I'd have no problems because of previous success and short distance. Within 20 minutes of departure, I found myself disoriented because of the haze. Fortunately I remained calm and eventually spotted a familiar landmark. This taught me to never take anything for granted (i.e., I've taken things for granted before) and to stay focused on all trips [S365].

Third, a number of pilots indicated that they had been subject to "peer pressure" or management pressure. For example,

As a private pilot, I succumbed to the "get-homeitis" of myself and my passengers after a weekend flight, which resulted in flying into deteriorating weather toward rising terrain. Fortunately, I climbed through a break in the OVERCAST and continued VFR on top and was lucky enough to find another isolated break close to my destination. I succeeded in getting home through luck, not skill, and have never succumbed to peer pressure and "get-home-itis" since. I am just glad this was a learning experience instead of my last flight [S547].

While flying a contract, another pilot and I were discussing the bad weather (it was 3rd week in December). The boss overheard us and came into the pilot office. His exact words were: I am not pushing you to flying. However, if you think the weather is bad tonight and you want your job tomorrow night, it better be bad enough that nobody else is flying either! I crashed three days later in freezing rain on ILS approach [1045].

Finally, a number of pilots indicated that the most stressful experience that they had encountered involved a failure to see-and-avoid. The resulting near misses were described by a number of pilots,

The most stressful situations I have encountered in my flying career have been, without a doubt two, maybe three near misses during my training and while I have flight instructed. I am positive each situation could have been avoided had it not been for complacency or getting too comfortable in the plane [0645].

Near mid-air collision, while instructing an instrument flight student. It was a hazy day, the student was under the hood. I looked down to write something on my clipboard-when I looked up a second later we were flying head on with another single engine aircraft. That aircraft flew below us by about 30 feet. I don't think they even saw us [0671].

Collectively, these results suggest that the factors that contribute most to pilot learning in the cockpit are those for which there is very little practical experience within the training environment. In the majority of these cases, the pilots appeared unaware of the significance of their behavior until it was almost too late to recover. One of the limitations associated with the existing pilot training environment is that inexperienced pilots are not often exposed to deteriorating weather conditions or a variety of in-flight failures. This lack is probably due to a combination of factors, including the costs involved over and above existing training systems and the difficulty in simulating the events safely.

Table 19. Comparisons with other pilots by accident involvement groups.

|  | Damage<br>to an<br>aircraft? | N          | Mean         | S.D.       | t     | р    | Bonferroni<br>adjusted-p |
|--|------------------------------|------------|--------------|------------|-------|------|--------------------------|
| I am more safety conscious                 | Yes<br>No                    | 110<br>632 | 3.75<br>3.81 | .66<br>.74 | .816  | .415 | 3.735                    |
| I am more willing to study safety          | Yes<br>No                    | 110<br>635 | 3.67<br>3.68 | .70<br>.74 | .161  | .872 | 7.848                    |
| I do better on FAA written exams           | Yes<br>No                    | 109<br>634 | 3.31<br>3.43 | .75<br>.82 | 1.434 | .152 | 1.368                    |
| I do better on FAA check rides             | Yes<br>No                    | 111<br>630 | 3.22<br>3.25 | .61<br>.68 | .393  | .694 | 6.246                    |
| I am willing to do more to be a safe pilot | Yes<br>No                    | 111<br>633 | 3.94<br>3.99 | .77<br>.70 | .695  | .487 | 4.383                    |
| i have had fewer "close calls              | Yes<br>No                    | 111<br>634 | 3.53<br>3.66 | .80<br>.86 | 1.516 | .130 | 1.17                     |
| I know more about the causes of accidents  | Yes<br>No                    | 110<br>631 | 3.55<br>3.40 | .77<br>.80 | 1.835 | .067 | 0.603                    |
| I am more interested in safety issues      | Yes<br>No                    | 111<br>630 |              | .71<br>.77 | .508  | .612 | 5.508                    |
| I take fewer risks when flying             | Yes<br>No                    | 112<br>639 |              | .75<br>.81 | .754  | .451 | 4.059                    |

#### Question 2

Question two was designed to determine the extent to which the circumstances described in question one led pilots to become more or less cautious with regard to their flying capabilities. Of the pilots surveyed, 74% responded to this question with the majority indicating that such stressful experiences made them more cautious concerning these events and less likely to make the same mistakes again. For example:

Fortunately the ice blocked off the tube enough to kill the engine during the flare and not on final or before. The experience <u>definitely</u> made me more careful and thoughtful, because I have learned from my carelessness; if the engine would have quit 5 to 10 seconds earlier, it could have killed me [082].

It absolutely made me more cautious. I do not like to be foolhardy, and would not have ever felt "rewarded". I also believe my perception of the danger (or potential) was accurate. However, the folks at the GA terminal presumed that it made me less safe — this attitude was nearly more damaging then the event itself, because I felt distrust, which undermined my confidence even further [283].

In some cases, pilots indicated that the experiences enhanced "higher level" cognitive skills such as situation awareness. As a case in point:

The result of that experience was that I learned to monitor all phases of the landing (airspeed, attitude, glide path, runway alignment, flap position, etc.) and not focus on one thing (in this case, the need to satisfy my training of "putting it on the numbers"). It certainly did make me more cautious and did not make me feel I could take more chances [247].

Table 20. Source of stressful events.

|  | Damage<br>to an<br>aircraft? | N         | Mean       | S.D.         | t    | р    | Bonferroni<br>adjusted-p |
|--|------------------------------|-----------|------------|--------------|------|------|--------------------------|
| Fuel problems?                                   | Yes<br>No                    | 55<br>309 | .21<br>.17 | .49<br>.54   | .597 | .551 | 5.51                     |
| Mistakes made by pilots in other aircraft?       | Yes<br>No                    | 49<br>306 | .46<br>.61 | 1.08<br>1.12 | .863 | .389 | 3.89                     |
| Navigational problems?                           | Yes<br>No                    | 49<br>309 | .16<br>.25 | .62<br>.63   | .985 | .325 | 3.25                     |
| Physiological problems (e.g., illness, fatigue)? | Yes<br>No                    | 49<br>301 | .22<br>.20 | .77<br>.71   | .136 | .892 | 8.92                     |
| Family commitments?                              | Yes<br>No                    | 48<br>303 | .06<br>.11 | .24<br>.51   | .705 | .481 | 4.81                     |
| Passenger requirements?                          | Yes<br>No                    | 47<br>299 | .10<br>.12 | .31<br>.46   | .247 | .805 | 8.05                     |
| Job related demands?                             | Yes<br>No                    | 51<br>301 | .21<br>.24 | .61<br>.86   | .239 | .811 | 8.11                     |
| A bad decision (e.g., go/no go, flight into MC)? | Yes<br>No                    | 49<br>300 | .61<br>.34 | 1.05<br>.73  | 2.26 | .027 | .27                      |
| Mechanical problems with the airplane?           | Yes<br>No                    | 52<br>309 | .92<br>.64 | 1.25<br>1.04 | 1.71 | .088 | .88                      |
| Veather problems (e.g., sudden storm)?           | Yes                          | 51        | .88        | 1.12         | .690 | .491 | 4.91                     |
|  | No                           | 308       | .76        | 1.11         |      |      |                          |

#### Question 3

This question was designed to determine pilots' perception of the aviation system in general, and the FAA in particular. Sixty-seven percent of pilots responded to this question, and the majority provided suggestions for the improvement of the system. One of the most consistent themes among more experienced pilots referred to the level of training provided to pilots. A number of pilots have developed suggestions to improve this situation, including:

What about incorporating flight training into some sort of adult-ed program or community college level course? The bottom line is better and more complete training at an affordable price [067].

Some IFR training for VFR pilots, as well as stall/spin training [163].

Mandatory hands on spin training from skidding turns and departure stalls prior solo- better basic instruction like "Stick and rudder". Would like to see videos depicting real weather situations from the air which would aid pilot trainee with special recognition of weather systems [233].

Table 21. Flights in potential or actual instrument conditions.

|  | Damage<br>to an<br>aircraft? | N          | Mean         | S.D.         | t     | р    | Bonferroni<br>adjusted-p |
|--|------------------------------|------------|--------------|--------------|-------|------|--------------------------|
| Flown at night in a single engine aircraft?    |                              | 107<br>614 | 2.30<br>2.26 | 2.15<br>2.06 | .183  | .855 | 4.275                    |
| Flown VFR under a 1500 AGL ceiling?            | Yes<br>No                    | 103<br>614 | 1.63<br>1.17 | 1.98<br>1.69 | 2.474 | .014 | .07                      |
| Requested a Special VFR clearance?             | Yes<br>No                    | 104<br>609 | .40<br>.32   | 1.02<br>.97  | .773  | .440 | 2.2                      |
| Flown VFR over the top?                        | Yes<br>No                    | 103<br>610 | .73<br>.67   | 1.34<br>1.33 | .417  | .677 | 3.385                    |
| Flown in instrument meteorological conditions? | Yes<br>No                    | 106<br>606 |              | 2.22<br>2.11 | .970  | .332 | 1.66                     |

I think a combination of pilot training and aircraft design is the key to GA safety, NOT more laws and regulations. Of the two, I think pilot training is most important. I think a pilot should receive some kind of safety training at least once a year, possibly twice [247].

Another relatively consistent theme was related to the provision of safety information. It appeared that a significant proportion of pilots could not get access to affordable safety information. Consider:

Make more safety material available to general aviation. Example: tapes, printed material such as accident reports [234].

I would require the FAA, NTSB, etc. to provide remedial training to help reduce recurrence. (No or low cost). I would have more programs such as "Wings Weekends" available. More safety seminars. Publications such as *Aviation Safety* should be more available and affordable [294].

A number of suggestions were advanced including the use of FBOs, local libraries, or local FSDOs.

A number of pilots considered the overall aviation system to be too complex, and therefore recommended the simplification of both procedures and requirements. For example,

I would simplify and standardize the FAA regulations [598].

I would simplify communication procedures at major airports. Ground control and approach/departure... more switch and monitor rather than check in [255].

Adopt AOPA 5 point plan on ATC reorganization: simplify recreational pilot certification requirements [266].

Overall, these results initially suggest that the majority of pilots are willing to offer advice concerning the improvement of the aviation system. Moreover, there appears to be a willingness to utilize safety-related information if the information is made accessible. This is consistent with the data arising from the quantitative aspect of the questionnaire, which indicates that pilots generally had a strong inclination towards skills development and the enhancement of pilot safety.

#### CONCLUSION

#### Descriptive Analysis

As a means of comparison, it was necessary initially to examine the extent to which the sample data obtained were a valid reflection of the responses that would be expected from the pilot population. In terms of the frequency of responses across pilot categories, the results suggested that commercial pilots and airline transport pilots were overrepresented within the sample, while private pilots were relatively underrepresented relative to the pilot population.

A majority of pilots (59%) in the target group (private certificate holders and non-professional commercial certificate holders) had not attended a FAA-sponsored safety seminar during the preceding 12 months. The attendees and non-attendees differed significantly in their reasons for non-attendance only with respect to "other priorities" that interfered with attendance. In order to encourage future attendance at FAA safety seminars, more consideration should be given to the selection of the topic and providing better meeting locations, as these were the two items chosen most often by seminar attendees and non-attendees, respectively.

Overall, pilots considered a "lecture by experts" as the most preferred learning style, perhaps in combination with slides and videos. However, many pilots are unlikely to have been exposed to all the learning styles listed, and therefore, the responses may reflect "familiarity" rather than "preference" per se.

While there was relatively little difference among the ratings of mean usefulness for each of the topics presented at FAA seminars, "Air Space Classification" was considered the most useful topic, followed closely by "Pilot Decision Making." "Aircraft Systems" was considered the least useful topic. The content of seminars was by far the most important motivator in terms of pilot attendance.

With respect to the venue of FAA-safety seminars, the majority of the pilots expressed a preference for a classroom or FBO meeting room. This appears to reflect the issue of accessibility, which was mentioned previously as one of the strategies to encourage attendance at FAA safety seminars.

Considerable support was expressed for the use of computer technology in safety-related training, with 79% of pilots indicating that they would either certainly or possibly use an interactive computer safety program. Moreover, nearly half of the pilots (45%) indicated a willingness to spend \$10 to \$30 to purchase a copy of a program.

## Comparison of Seminar Attendees and Non-attendees

Those pilots in the target group who had attended at least one FAA-sponsored safety seminar during the previous 12 months differed significantly in four areas from non-attendees in their perceptions regarding FAA seminars. Seminar attendees perceived the FAA seminars as being (1) more interesting, (2) well publicized, and (3) well organized. In addition, they

believed more strongly than non-attendees that pilots attend FAA-sponsored to seminars to learn rather than to socialize.

Seminar attendees chose "Offer more exciting presentations" as the best way to encourage attendance. These findings are in accord with other research (Hunter, 1997), which suggests that providing interesting presentations is an important element in attracting pilots to seminars. In contrast, non-attendees indicated that "Provide a better meeting location" was the factor that would most improve their attendance. Both groups agreed, however, on the preferred format—lectures by an expert, combined with a question and answer period.

In examining the factors that may affect attendance decisions, attendees and non-attendees differed only with respect to the extent to which "Other priorities" affected their decision. Non-attendees were more strongly affected by this factor than attendees.

Significant differences were found between the two groups on the incidence of watching safety videos and reading FAA publications. This finding is probably an artifact of the group formation, since many (if not most) FAA seminars involve watching safety videos, and it would not be unreasonable to think that seminar attendees read more FAA publications as a result of their being distributed at all FAA seminars.

Although no significant differences were found between seminar attendees and non-attendees on their self-assessed knowledge and proficiency, it is interesting to note that non-attendees rated themselves as higher on all categories. This leads to the speculation that non-attendees abstain from the FAA safety seminars because they feel, to some extent, that they have achieved a satisfactory state of knowledge and proficiency and, hence, have no need for further training. The present data do not allow us to explore this notion further (specifically, we have no measure of the non-attendees degree of satisfaction with their knowledge and proficiency, relative to attendees), but it would make for an interesting future study.

For those questions that asked the pilots to compare themselves with other pilots, there was only one statistically significant difference. Seminar attendees indicated that they were more willing to study safety, compared to non-attendees. The remainder of the items showed no clear pattern — for half of the items the attendees rated themselves marginally higher than other pilots, while for the other half the non-attendees rated themselves marginally higher than other pilots.

## Accident/Incident Involvement and Safety Activities

In comparing the use of safety resources by those pilots who had been in an accident/incident to those pilots who had not been in an accident/incident, only one statistically significant difference was observed. Non-accident pilots hired CFI more often than did accident pilots. A marginally significant difference (p = .06) was obtained for "Reading a magazine article on safety" which was done more often by non-accident pilots.

A marginally significant difference (p = .065) was also found when comparing accident and non-accident pilots on seminar attendance. Accident pilots were less likely to have attended one or more seminars than non-accident pilots.

Accident pilots consistently rated themselves as higher in knowledge and proficiency than non-accident pilots. In addition, in comparing themselves to other pilots, accident pilots rated themselves as more capable in every category than non-accident pilots.

The proportion of pilots who reported that they had experienced a stressful situation in the previous 12 months was almost exactly the same for accident (43%) and non-accident (44%) pilots. In addition, among those pilots in both groups who reported having experienced a stressful situation, there were no significant differences in the contributing factors for the stressful flights. Similarly there were no significant differences between the two groups with respect to the numbers of times they had flown in potential instrument meteorological conditions. Only one difference, "Flown VFR under a 1500 AGL ceiling" approached significance (p = .07).

#### Qualitative Analysis

A surprising number of respondents took the time to answer the optional questions (76% in the case of the first question). The results arising from the qualitative analysis indicated that the majority of pilots had been involved in stressful situations that caused them to alter their knowledge or attitude about flying. These situations ranged from the pilots being unaware of an impending event until it was too late, to peer or management pressure. A large majority of events was related to weather conditions; in particular, unexpected deterioration from either the forecast on departure or the particular conditions expected.

Overwhelmingly, these events had resulted in pilots becoming more cautious and developing "higher-order" skills such as situation awareness or problem-solving. A number of pilots indicated that they had not received such skills during their training, and that this was one area that required some revision by the FAA. Indeed, requirements for the teaching and evaluation of decision-making have recently been added to the Federal Aviation Regulations.

Consistent with the results arising from the quantitative aspect of the questionnaire, pilots expressed a willingness to improve their safety-related skills but found it difficult to acquire such information. In addition to ease of access, pilots requested a variety of safety-related aids incorporating "real-life scenarios."

#### **Implications**

There are several of implications arising from the current analysis that may be used to improve pilots' receptivity to safety-related information.

- Provide FAA seminars in an accessible location (schools, FBOs, etc.)
- Develop and distribute a variety of safety-related training products.
- Ensure that available safety-related training products are cost-effective.
- Define the target group for which a FAA seminar is designed, and focus the seminar accordingly.
- Provide wider publicity for FAA seminars.
- Provide more innovative and interesting topics for discussion at FAA seminars.
- Consider content issues in the selection of seminars (human factors and pilot decision making).
- Develop strategies to encourage the use of safetyrelated resources among pilots in the target group.

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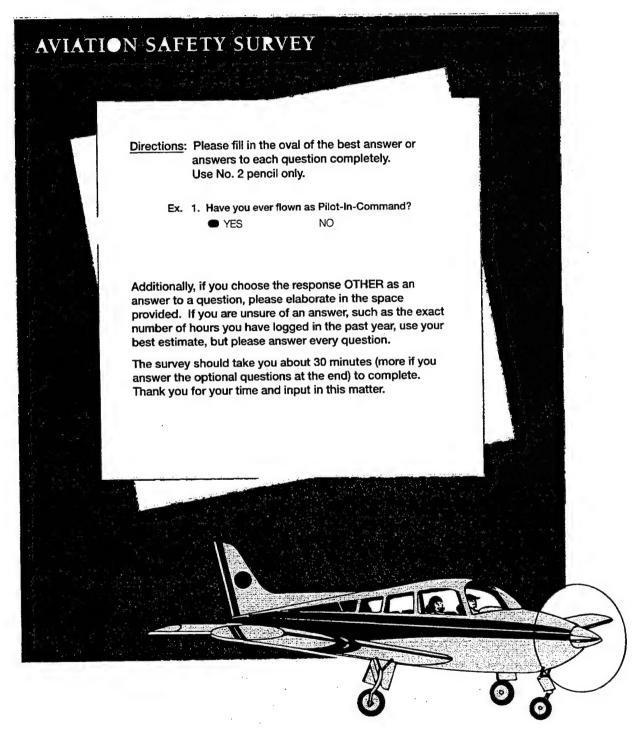
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## APPENDIX A QUESTIONNAIRE

## The Ohio State University DEPARTMENT OF AEROSPACE ENGINEERING, APPLIED MECHANICS, AND AVIATION





## SE OF AVIATION SAFETY INFORMATION:

1. In the last 12 months, how often did you do each of the following?

| Used a computer flight simulation program<br>Read a book on aviation safety<br>Viewed a video on aviation safety                     | 9990 | <b>1</b> 000 | 2<br>3   | 3 3 3 | 4 000 | 5 6 6 | 600  | 7000 | 8 6 6 | #⊕           |
|--|------|--------------|----------|-------|-------|-------|------|------|-------|--------------|
| Read a magazine article on safety<br>Hired a CFI for training<br>Read an FAA publication<br>Referred to an aircraft operating manual | 999  | 999          | <b>@</b> | (G)   | 000   | 999   | 999  | 9886 | 9000  | <b>8 8 8</b> |
| Asked another pilot a safety question  Answered another pilot's safety question  Used a computer-based learning program              | 9999 | 9999         | ଉଚଚଚ     | 9999  | 0000  | 9999  | 9999 | 9999 | 9999  | <b>aaaa</b>  |

2. The most effective method for me to learn more about each of the following safety topics would be (mark one per topic)...

|   |                                    | Talk to<br>Other Pliots | Attend Safety<br>Seminar | Meet with<br>a CFI | Self Study,<br>Practice | Other,<br>Please Specify |                |
|---|------------------------------------|-------------------------|--------------------------|--------------------|-------------------------|--------------------------|----------------|
| • | Aerial maneuvers (e.g., stalls)    | Œ                       | 2                        | (3)                | <b>(T)</b>              | (S)                      |                |
|   | Airport operating procedures       | <b>①</b>                | <b>(2</b> )              | <b>3</b>           | Œ                       | <u> </u>                 |                |
|   | Air space classifications & use    | 0                       | 2                        | 3                  | TO TO                   | (S)                      |                |
|   | Air traffic control procedures     | Œ                       | 2                        | 3                  | <b>6</b>                | <u>o</u>                 |                |
|   | Aircraft systems & performance     | Œ                       | (2)                      | (3)                | (i)                     | <u> </u>                 |                |
|   | Emergency procedures               | <b>①</b>                | ( <u>a</u> )             | <b>3</b>           | Œ                       | <u>s</u>                 | 34 1 1 1 1 1 1 |
|   | Federal aviation regulations       | Œ                       | 2                        | 3                  | <u>a</u>                | (5)                      |                |
|   | Flight hazards (e.g., weather)     | Œ                       | (2)                      | <b>③</b>           | <b>3</b>                | (3) ·                    |                |
|   | IFR procedures & techniques        | Φ                       | <b>(2</b> )              | 30                 | •                       | (5)                      |                |
|   | Preflight (e.g., weight & balance) | Œ                       | 2                        | <b>3</b>           | <b>(D)</b>              | (5)                      |                |
|   | Takeoff & landing procedures       | OD                      | 2                        | <b>③</b>           | <b>(4)</b>              | (3)                      |                |
|   | Pilot decision making              | <b>O</b>                | <b>②</b>                 | 30                 | <b>(I</b> )             | (S)                      |                |
|   | Human factors                      | <b>①</b>                | 2                        | <b>3</b>           | <b>(D)</b>              | (3)                      |                |
|   | Crew resource management           | <b>O</b>                | <b>②</b>                 | <b>③</b>           | <b>(D)</b>              | <b>©</b>                 |                |
|   |                                    |                         |                          |                    |                         |                          |                |

| _    |              |
|------|--------------|
|      |              |
| / TT | MATERIAL AND |
| (II. | EMINARS:     |
| 1    |              |

| Number of non-FAA safety seminars you have attended in the last 12 months:   | Who sponsored the last non-FAA safety seminar you attended? |
|--|---|
| <ul> <li>○ None (go to question 6)</li> <li>○ One</li> <li>○ Two</li> <li>○ Three</li> <li>○ Faur or more</li> </ul> | O AOPA O EAA O Local FBO O Other:                           |

5. Were the following topics formally presented at the last non-FAA safety seminar you attended?

|                                   |              |          |          | if YES, re | ite its usef | ulness:     |          |
|-----------------------------------|--------------|----------|----------|------------|--------------|-------------|----------|
| FAA en totte                      | YES          | NO       | Low      |            |              |             | High     |
| FAA regulations                   | _ <b>C</b> C | Œ        | Œ        | <b>②</b>   | (3)          | <b>(1)</b>  | (3)      |
| Takeoffs & landings               | 9            | OBD .    | OD.      | (2)        | ത            | Œ.          | œ ·      |
|                                   |              |          |          |            | 3            | Œ           | · ©      |
| Air space classifications and use | (7)          | (B)      | ĕ        | Ø.         | Š            |             |          |
| Air traffic control procedures    | (K)          | 080      | 8        | (Z)        |              | <b>®</b>    | <b>©</b> |
| Weather                           | œ            | <b></b>  | $\sim$   | -          | . <b>3</b>   | •           | <b>©</b> |
| Aircraft systems                  | (D)          | <b>A</b> |          | @          | ં જી         | <b>©</b>    | <b>©</b> |
| Pilot decision making             | <u> </u>     | w w      | ⊕        | ☎          | <b>3</b>     | <b>(I</b> ) | ➂        |
| Human factors                     | <u> </u>     | ODD .    | Φ.       | (2)        | (30)         | Œ           | <b>©</b> |
| Figure 1 actors                   | (A)          | (W)      | <b>O</b> | 2          | 3            | <b>④</b> .  | <b>©</b> |

| <ol><li>Number of FAA safety seminars you have attended in the</li></ol> | e last 12 months: |
|--|-------------------|
| O None (go to question 8)  |                   |

One
Two
Three
Four or more

### 7. Were the following topics formally presented at the last FAA safety seminar you attended?

|   | If YES, rate its usefulness:  |
|---|---|
| FAA regulations Takeoffs & landings Operating procedures (IFR or VFR) Air space classifications and use Air traffic control procedures Weather Aircraft systems Pilot decision making Human factors  YES  YES  YES  YES  YES  YES  YES  YE  | NC Low High N   |
| 8. Regardless of whether you've attended FAA safety seminars  FAA seminars primarily are designed for   | ① ② ③ ④ ⑤ All pilots  |
| The presentations at FAA seminars are Boring The topics discussed at FAA seminars are Too comple The material presented at FAA seminars is Repetitive Most pilots go to FAA seminars to Socialize Most FAA seminars are Poorty publ Most FAA seminars are Poorty orga   | ex ① ② ③ ④ ⑤ Too easy ① ② ③ ④ ⑤ Innovative ① ② ③ ④ ⑤ Learn licized ① ② ④ ⑥ Well organized   |
| 9. Regardless of whether you've attended non-FAA safety semin   | nars, what are your perceptions of each of the following aspects?   |
| Non-FAA seminars primarily are designed for Poor pilots The presentations at non-FAA seminars are Boring The topics discussed at non-FAA seminars are Too comple The material presented at non-FAA seminars is Repetitive Most pilots go to non-FAA seminars to Socialize Most non-FAA seminars are Poorly pub Most non-FAA seminars are Poorly organical seminars are Poorly | ① ② ③ ④ ⑤ All pilots ① ② ③ ④ ⑤ Interesting ex ① ② ⑤ ④ ⑤ Too easy ① ② ⑤ ④ ⑥ Innovative ① ② ⑥ ④ ⑥ Well publicized   |
| 10. I attended my last safety seminar because (mark ALL that apply)   | 13. Meeting Location:   |
| <ul> <li>☐ I had never been to one and was curious</li> <li>☐ It had been recommended to me by friends</li> <li>☐ I wanted to learn about the topic.</li> <li>☐ I felt obligated to go</li> </ul>   | <ul> <li>○ Airport hangar</li> <li>○ School or college classroom</li> <li>○ FBO/Flying club meeting room</li> <li>○ Other:</li> </ul>   |
| My friends were going     I had to renew my certification     I always try to attend     Other:   | 14. Class Size:   |
| <ol> <li>The BEST way to get me to attend a future aviation<br/>safety seminar is</li> </ol>  | 15. Day:  |
| Discuss more relevant topics     Offer more exciting presentations     Provide a better meeting location     Set a more convenient meeting time   | 16. Time of Day: Morning Afternoon Evening  |
| Provide child care     Provide better publicity     Get more of my friends to attend     Other:   | 17. Length: Cless than 30 minutes 60 - 90 minutes More than 90 minutes  |
| Do nothing, I will never attend     Do nothing, I always try to attend  | 18. For me, the BEST format for a safety seminar would be (mark only one)   |
| For questions 12 - 17, choose the ONE that best describes the seminar setting that would be MOST appealing to you:  | <ul> <li>Lectures by experts followed by a question and<br/>answer period</li> <li>Testimonials by fellow pilots followed by a question and</li> </ul>                        |
| 12. Please rate how these factors affect your safety seminar  | answer period Open group discussion   |
| attendance decision.  Not Very  | Town meeting format — no set agenda, leader answers questions raised by the group   |
| Important Important Time ① ② ③ ③ ⑤  | large group discussion  |
| Money ① ② ③ ⑥ ⑤ Interest ① ② ③ ③ ① ⑤ Motivation ① ② ③ ④ ⑤ Effort ② ③ ③ ④  | <ul> <li>Video or slide presentation followed by discussion</li> <li>Practice exam on topic(s) followed by a question and answer period about exam</li> <li>Other:</li> </ul> |
| Other priorities ① ② ③ ④ ⑤  Confidence ① ② ③ ④ ⑤  Support from family ① ② ④ ⑤  Peer pressure ① ② ④ ⑥  Fear of failure ① ② ⑥ ⑥   |   |
| Other:Not applicable, I always try to attend.   |   |

| (III.) COMPUTER/VIDEO | USF: |
|-----------------------|------|
| SCHI CILIVIDEO        | USE. |

| 128  | EC COL.                          |               | •                            |            |         |             |               |             |
|--|----------------------------------|---------------|------------------------------|------------|---------|-------------|---------------|-------------|
| 19. Do you use a compu                                   | ter at home?                     | 1 0           | T Markete est                |            |         |             |               |             |
| ○ YES  | © NO                             | 2             | 5. Which of t                | he followi | ng de   | scribes     | your comp     | uter        |
| 2 120  | C. NO                            |               | equipmen                     | c set-up a |         |             | nark ALL th   | at apply)   |
| 20 Have you used a com                                   | amishas dialet also to st        |               | MAC IBM                      |            |         | Diskette    | 9             |             |
| That's you used a con                                    | nputer flight simulation progra  | m?            | CD-RO                        | M          | 5.      | E-Mail      |               |             |
| O YES  | ○ NO                             |               | · OD-110                     | IVI        | • • •   | i nave r    | o computer    |             |
| 21. Is it likely you will but                            | a computer for your home in      | 26            | 6. Have you                  | ever viewe | d an    | aviation    | safety vide   | o at home?  |
| next year?   | a computer for your name in      | the           | C. YES                       |            |         | NO          |               | o at nome.  |
| C YES  | - NO                             |               |                              |            |         |             |               |             |
|  |                                  | 27            | If the FAA                   | prepared a | aviati  | on safet    | y videos foi  | pilots,     |
| 22. If the FAA provided in                               | teractive computer safety        |               | would you                    | view then  | η?      |             |               | •           |
| programs for pilots, w                                   | ould you use them?               |               | <ul> <li>Certaint</li> </ul> | /          |         | Not likel   | Y             |             |
| Certainly  | O Not likely                     | 1             | Possibly                     |            | 7       | Never (g    | o to questic  | on 31)      |
| C Possibly   | Never (go to question 25)        | 1             | Uncertá                      | n          |         |             | •             |             |
| <ul> <li>Uncertain</li> </ul>                            | (30 10 4000011 20)               | 1             | 14.4                         |            |         |             |               |             |
|  |                                  | 28            | . If the FAA                 | prepared a | viatio  | on safety   | videos for    | pilots,     |
| 23. If the FAA prepared co                               | omputer safety programs for      |               | which of th                  | e tollowin | g is ti | he best v   | way to mak    | e them      |
| pilots, what is the mos                                  | st you would be willing to pay   |               | available to                 | you?       |         |             |               |             |
| to buy one?  | 5 to <b>pay</b>                  |               | C Local FS                   | SDO        | (7.2    | Grocery     | store         |             |
| Will not use   | \$10 to \$30                     | - 1           | Local lib<br>Video re        | rary       | ,       | Other:_     |               |             |
| ○ <b>\$</b> 0  | \$31 to \$100                    | - 1           | video re                     | ntal store |         |             |               |             |
| C Less than \$10   | \$31 to \$100<br>More than \$100 |               |                              |            |         |             |               |             |
|  |                                  | 29.           | If the FAA p                 | repared av | /iatior | safety v    | ideos for pi  | ilots, what |
| 24. If the FAA prepared co                               | emputer safety programs for      | 1             | is the most                  | you would  | be w    | illing to   | pay to BUY    | one?        |
| pliot use, what is the b                                 | est way to make them availab     | ole .         | Will not ι                   | se         | 177     | \$5 to \$1  | 0             |             |
| to you?  | , and the district district      |               | \$0                          |            | 10.0    | More tha    | in \$10       |             |
| Will not use   |                                  | ł             | Less that                    | n \$5      |         |             |               |             |
| Down load from a ne                                      | etwork (E-Mail, etc.)            |               |                              |            |         |             |               |             |
| → Duy at a computer s                                    | tore                             | 30.           | If the FAA pr                | repared av | riation | safety v    | ideos for pi  | lots, what  |
| Order through the m                                      | ail                              | 1             | is the most                  | ou would   | be w    | illing to p | ay to RENT    | one?        |
| Duy at a FBO   |                                  | ĺ             | Will not u                   | se         | (       | \$3 to \$5  |               |             |
|  |                                  |               | <b>҈\$</b> 0                 | ••         |         | More tha    | n <b>\$</b> 5 |             |
|  |                                  | 1             | C Less than                  | 1 \$3      |         |             |               |             |
| ETT E ACCECCA CENT                                       |                                  |               |                              |            |         |             |               |             |
| SELF ASSESSME  | <u>NT</u> :                      |               |                              |            |         |             |               |             |
| 31. Please rate your level o                             | of knowledge or proficiency as   | a pilot in o  | oob of the f-                | 0          |         |             |               |             |
| •  | as promoted by as                | a bliot ili e | ach of the to                | ollowing a | reas    | •           |               |             |
| Preflight planning                                       |                                  |               | Poor                         |            |         |             | Excellent     |             |
| Ground handling  |                                  | *             | (1)<br>(D)                   | 2          | 3       | .4          | 5             |             |
| <ul> <li>Takeoff and landing proc</li> </ul>             | edures                           |               | $\tilde{\Sigma}$             | 2          | 3.      | 4           | 5             |             |
| basic ver tiying techniqi                                | Jes ·                            |               | 37                           | 2          | :3:     | 4           | 5             |             |
| Instrument flying procedu                                | ures                             |               |                              | 2.         | 3       | 4           | 5<br>5        |             |
| Emergency procedures Weather and its impact of           | on diaba                         |               | 10                           | 2          | 3       | 14          | 5             |             |
| Weather and its impact of<br>Air traffic control procedu | on flight                        |               | 15                           | <b>'2</b>  | 3       | 4           | 5             |             |
|  | iles                             |               | 4.172                        | 2          | 3       | 4           | 5             |             |
| Aviator decision making                                  |                                  |               | 17                           | 2          | 3       | 4           | 5             |             |
| Human factors  |                                  |               | 11                           | 2          | 3       | 4           | 5.            |             |
| Air space regulations                                    |                                  |               | 1.<br>1.                     | 2          | 3       | 4           | 5<br>5        |             |
| 2 Compound to attended                                   |                                  |               | A.                           | -4         | •       | *.          | 5             |             |
| 2. Compared to other pilot                               | S                                | Strongly      |                              |            |         |             | Charact -     |             |
| 1  |                                  | Disagree      | Disagree                     | Neutral    |         | Agree       | Strongly      |             |
| am more safety conscion                                  | us                               | 1             | 2                            | 3          | •       | 4           | Agree<br>5    |             |
| I am more willing to study                               | sarety                           | . 1           | 2                            | ,3         |         | - 4         | 5             |             |
| I do better on FAA written<br>I do better on FAA check   | rides                            | 11,           | 2                            | 3          |         | 4           | 5             |             |
|  |                                  | 7             |                              |            |         |             |               |             |

| do better on FAA check rides               |     |     | 3.   | 4   |  |
|--|-----|-----|------|-----|--|
| I am willing to do more to be a safe pilot |     | 2   | . 3  | 4   |  |
| have had fewer "close calls"               |     | 2   | 3    | 4   |  |
| know more about the causes of accidents    | IJ. | 2,  | 3.   | 4   |  |
| am more interrested in action in           | (1) | 2)  | .3`` | 14  |  |
| am more interested in safety issues        | 11  | . 2 | 3    | 4   |  |
| I take fewer risks when flying             | (1) | 2`  | 3    | 4   |  |
|  |     |     |      | 14. |  |

| 3. Approximately how much of the information required for s   | nafa fli—L±                             | do vou thint                                       | n   |  |
|---|---|--|---|--|
| so. Approximately now much of the information required for s  | Sate flight<br>Very<br>Little           | About<br>Half                                      | Most                                      | Almost<br>All                              |
| Learned at a safety seminar  Learned from a textbook  Learned from watching videos  Learned from a CFI  Memorized but never understood  Learned from a computerized tutorial  Learned in a classroom  | ②<br>③<br>②                             | (3)<br>(3)<br>(3)                                  | (1)<br>(1)<br>(2)                         | (5)<br>(5)<br>(6)                          |
| TRESS FACTORS:  |   |  |   |  |
| le are attempting to determine the frequency with which pilot tuations that are stressful because they are unusual or potentressful situation is defined as a flight where you were the Pil a situation you feared might result in injury or damage; or (shove normal stress to you, your passengers or others.                                     | tially dang<br>lot-In-Com               | erous. When and eith                               | er of the fo                              | questions 35 - 38, a<br>bllowing occurred: |
| 4. In the last 12 months  |   |  |   |  |
| <ul> <li>I have had a stressful situation as defined above.</li> <li>I have not had a stressful situation as defined above (go to</li> </ul>  | o question                              | 37).   |   |  |
| 5. How many of your flights in the last 12 months as Pilot-In-C   | command                                 | put you in a stn                                   | essful situa                              | tion (as defined abov                      |
| O1 O2 O3 O4 O5  | ○ 6                                     | O 7.   | ○ 8                                       | ○ 9+                                       |
| 6. How often were the following contributing factors in your  |   |  |   |  |
| Fuel problems?  Mistakes made by pilots in other aircraft?  Navigational problems?  Physiological problems (e.g., illness, fatigue)?  Family commitments?  Passenger requirements?  Job related demands?  A bad decision (e.g., go/no go, flight into IMC)?  Mechanical problems with the airplane?  Weather problems (e.g., sudden storm)?  Other: | 900000000000000000000000000000000000000 | (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | 3 (C)<br>3 (C)<br>3 (C)<br>3 (C)<br>3 (A) | )  |
| 7. Have you been the Pilot-In-Command of an aircraft that w   | vas involv                              | ed in an accide                                    | ent or incid                              | ent resultina in                           |
| Damage to an aircraft? ① ① ①  Damage to property? ② ② ①  Personal injury? ② ②   |   | ,  |   | · · · · · · · · · · · · · · · · · · ·      |
| RECENT FLYING EXPERIENCE:   |   |  |   |  |
| 8. About how many hours have you logged as Pilot-In-Com   | mand in                                 |  |   |  |
| Last 12 months  |   | _  |   | areer                                      |
| Under 25 25-50 Airplane   | Over 50                                 | Und  | er 1.00 10                                | 00-400 Over 400                            |
| Night Simulator Actual instrument Complex single engine Multi-engine piston Turbine   | 000000                                  |  |   |  |
| 9. Have you ever flown as Pilot-In-Command as a   |   | • •  |   |  |
| Military pilot? Commercial pilot for hire (e.g., air taxi, CFI)?  Airline Pilot?  | NO<br>N<br>N                            |  |   |  |

|            | Category:   | Airplai  | ne  | ○ Roto   | rcraft   | CI                         | Lighter-than                      | -air                     | a last 12 mor<br>Glider                  |                   |
|------------|---|--|---|--|--|----------------------------|-----------------------------------|--------------------------|--|-------------------|
|            | Class:  |  | -Engine Land<br>Engine Land<br>-Engine Sea<br>Engine Sea              | C Helio<br>C Gyro  |  |                            | Airship<br>Balloon                |                          |  |                   |
|            | ○ I have NO   | OT flown in th   | ne past 12 monti  | ns (go to ques   | stion 43).   |                            |                                   |                          |  |                   |
| 41         | . What portion  | n of your to   | tal hours logge   | d in the past  | 12 months we   | re                         |                                   |                          |  |                   |
|            | Cross-countr<br>Training or pr<br>IFR flights for<br>IFR flights for  | y VFR pleas<br>y VFR busin<br>roficiency flig<br>business pu<br>personal pu<br>flight crew m   | ure flights<br>ess flights<br>hts<br>urposes<br>urposes<br>ember      |  | 0000   | then 000000000             | 25% 25%                           | to 50% (                 | 50% to 75%                               | 75% to 100%       |
| 42         | . In the past 1   | 2 months, h  | ow many times   | have you   |  |                            |                                   |                          |  |                   |
|            | Flown at night<br>Flown VFR under Requested and Flown VFR of Flown in instructions.   | nt in a single<br>nder a 1500<br>Special VFF<br>ver the top?<br>rument mete  | engine aircraft?<br>AGL ceiling?<br>I clearance?<br>orological condit | ions?  |  | 00000                      | -                                 | (2)<br>(2)<br>(3)<br>(2) | (3) (4)<br>(3) (4)<br>(3) (4)<br>(3) (4) | \$€<br>(£)<br>(£) |
| \2_        | ERSONA  | L INFO   | RMATION   | :  |  |                            |                                   |                          |  |                   |
| ) <u>P</u> |   |  |   | f tuninin a fau  | your first pilat   |                            | ficate                            |                          |  |                   |
| ·          |   |  | he MAJORITY of  |  | ,  | Ceru                       |                                   |                          |  |                   |
| ·          | (please mark<br>Military fly<br>Civilian fly<br>Collegiate  | ONLY ONE<br>ing school<br>ing school<br>flight school  | of the following  | g)<br>n a CFI worki<br>n a CFI worki   | ng for a Fixed-E<br>ng for a flying d<br>ng independent  | Based<br>lub               | l Operator                        |                          |  |                   |
| 43         | (please mark  Military fly  Civilian fly  Collegiate  None of the   | c ONLY ONE<br>ing school<br>ing school<br>flight school<br>he above, pl  | of the following From From From From From                             | g)<br>n a CFI worki<br>n a CFI worki<br>n a CFI worki  | ng for a Fixed-E<br>ng for a flying d<br>ng independent  | Based<br>lub<br>tly        | Operator                          |                          |  |                   |
| 43         | (please mark  Military fly  Civilian fly  Collegiate  None of the   | c ONLY ONE<br>ring school<br>ring school<br>e flight school<br>he above, play<br>year you re-  | of the following From From From From From Ease specify:               | g)<br>n a CFI worki<br>n a CFI worki<br>n a CFI worki  | ng for a Fixed-E<br>ng for a flying d<br>ng independent  | Based<br>lub<br>tly        |                                   |                          |  |                   |
| 43         | (please mark  Military fly Civilian fly Collegiate None of tl  Indicate the STUDENT:  AIRPLANE: single-en multi-eng single-en   | c ONLY ONE ring school ing school e flight school he above, ple year you re- 19 gine land gine land gine sea   | of the following From From From From From Ease specify:               | n a CFI workin a C | ng for a Fixed-Eng for a flying dindependent  Rating you ho  Commercial  19 19                     | Based<br>lub<br>lly<br>Id: | Airline<br>ansport<br>9<br>9      | <b>CFI</b><br>19         | Instrumer<br>19                          | nt                |
| 43         | (please mark  Military fly  Civilian fly  Collegiate  None of tl  Indicate the  STUDENT:  AIRPLANE:  single-en multi-eng  | c ONLY ONE ing school ing school ifight scho | of the following From From From From From From From From              | n a CFI workin a C | ng for a Fixed-Eng for a flying on gindependent  Rating you ho  Commercial                         | Based<br>lub<br>lly<br>Id: | Airline<br>ensport<br>9<br>9<br>9 |                          |  | <b>vt</b>         |
| 43         | (please mark  Military fly Civilian fly Collegiate None of tl Indicate the STUDENT:  AIRPLANE: single-en multi-eng single-en multiengi ROTORCRAF helicopte gyropland LIGHTER-TH airship | c ONLY ONE ing school ing school ifight scho | ceived each Ce  | n a CFI workin a C | ng for a Fixed-Eng for a flying on independent  Rating you ho  Commercial  19 19 19 19 19 19 19 19 | Based<br>lub<br>lly        | Airline<br>ensport<br>9<br>9<br>9 |                          |  | <b>nt</b>         |
| 43         | (please mark  Military fly Civilian fly Collegiate None of the STUDENT:  AIRPLANE: single-en multi-eng single-en multiengi ROTORCRAF helicopte gyroplane LIGHTER-TH                     | c ONLY ONE ing school ing school ifight scho | ceived each Ce  | n a CFI workin a C | rig for a Fixed-Eng for a flying ding independent  Rating you ho  Commercial  19                   | Based<br>lub<br>lly        | Airline<br>ensport<br>9<br>9<br>9 |                          |  | <b>nt</b>         |

| 45. To what flying organizations do you belong? (mark ALL that apply)   |
|---|
| <ul> <li>Aircraft Owners &amp; Pilots Association (AOPA)</li> <li>Experimental Aircraft Association (EAA)</li> <li>Vocation related organizations (e.g., Flying Farmers)</li> </ul> |
| Aircraft owner's club (e.g., Cessna Pilot's Assoc.)     Aviation trade organization (e.g., union)   |
| ○ Ninety-nines<br>○ A flying club   |
| Other: I do not belong to a flying organization.  |
|   |
| 46. What flying magazines do you read regularly? (mark ALL that apply)  |
| ○ FAA Aviation Safety Journal ○ AOPA Pilot  |
| <ul> <li>○ Flying</li> <li>○ Air Progress</li> </ul>  |
|   |
| Aviation Consumer     EAA Sport Aviation  |
| <ul> <li>○ Business &amp; Commercial Aviation</li> <li>○ Plane &amp; Pilot</li> </ul>   |
| Professional Pilot     Others:  |
| O I do not read flying magazines.   |
| 47. Highest educational degree received:  |
| ○ Grade School  |
| <ul> <li>☐ High School</li> <li>☐ Associates degree or equivalent (2 yrs. college)</li> </ul>   |
| <ul> <li>College Graduate (B.A., B.S., or other Bachelors degree)</li> <li>Master's Degree</li> </ul>   |
| <ul> <li>Professional or Academic Doctorate (M.D., J.D., Ph.D., etc.)</li> </ul>  |
|   |
| 48. Year of Birth: 19   |
|   |
| ②②<br>③③  |
| (C)   |
| © © © D D D D D D D D D D D D D D D D D   |
| (D) (D)   |
|   |
| 49. In which region do you usually take-off from?   |
| Alaska Central (IA, KS, MO, NE)   |
| <ul><li>Eastern (DC, DE, MD, NJ, NY, PA, VA, WV)</li><li>Great Lakes (IL, IN, MI, MN, ND, OH, SD, WI)</li></ul>   |
| O New England (CT, MA, ME, NH, RI, VT)  |
| <ul> <li>○ Northwest - Mountain (CO, ID, MT, OR, WA, WY, UT)</li> <li>○ Southern (AL, FL, GA, KY, MS, NC, SC, TN)</li> </ul>  |
| <ul> <li>○ Southwestern (AR, LA, NM, OK, TX)</li> <li>○ Western Pacific (AZ, CA, HI, NV)</li> </ul>   |
|   |
| 50. What is your primary occupation:  |
| 51. Gender:   |

Thank you for taking the time to thoroughly complete this survey. It is concerned individuals, such as yourself, who participate in research studies that help make positive changes in the aviation field possible.

Furthermore, as mentioned in the survey cover letter, there are four optional questions on the following page. Feel no obligation to complete them, but please do so if you feel you have something to offer that you believe would be helpful to this research project or aviation safety in general. Thank you again for your assistance in this important study.

| 1  | . Over your career, have you had flying experiences (accidents, incidents, or stressful situations) that have changed your knowledge or attitude about flying in a significant way? Such experiences may be useful in teaching other pilots better decision making skills. Please use the space below, adding other pages as needed, to describe one such experience.          |
|----|--|
| 2  | . Some say that experiences such as you just described can make you less safe because you were rewarded by "making it through". Others say, that the pain of the experience makes you more cautious. What was the result of the above experience to you? Did it make you more cautious? Did it make you believe that because you were successful, you could take more chances? |
| 3. | . If you were in a position of power, what would you change to make your kind of aviation safer in the USA?  |
| 4. | If any of the questions in the survey sparked an idea potentially useful for aviation safety, please use the space below, and/or additional pages, to discuss or expand on your answers.   |

#### APPENDIX B

# DISTRIBUTIONS OF RESPONSE FREQUENCIES FOR CERTIFICATE CATEGORIES AND TARGET GROUP

#### TABLE B-1.

#### In the last 12 months, how often:

#### Used a computer flight simulation program

|           |                          | Target | Private | Commercial | ATP |
|-----------|--------------------------|--------|---------|------------|-----|
|           | Never                    |        |         |            | 53% |
|           | One time                 | 6%     | 7%      | 8%         | 9%  |
|           | Two times                |        |         |            |     |
|           | Three times              | 4%     | 4%      | 4%         | 5%  |
|           | Four times               |        |         |            |     |
|           | Five times               |        |         |            |     |
|           | Six times                | 4%     | 4%      | 3%         | 2%  |
|           | Seven times              | 1%     | 1%      | 1%         | 1%  |
|           | Eight times              | 0%     | 0%      | 1%         | 0%  |
|           | Nine or more times       |        |         |            |     |
| Read a bo | ok on aviation safety    |        |         |            |     |
|           | Never                    | 32%    | 32%     | 30%        | 40% |
|           | One time                 | 19%    | 20%     | 17%        | 16% |
|           | Two times                | 14%    | 15%     | 13%        | 12% |
|           | Three times              | 8%     | 8%      | 9%         | 6%  |
|           | Four times               | 4%     | 4%      | 6%         | 4%  |
|           | Five times               | 5%     | 6%      | 7%         | 4%  |
|           | Six times                | 4%     | 4%      | 3%         | 3%  |
|           | Seven times              | 1%     | 1%      | 1%         | 1%  |
|           | Eight times              | 0%     | 1%      | 1%         | 1%  |
|           | Nine or more times       | 12%    | 11%     | 14%        | 13% |
| Viewed a  | video on aviation safety |        |         |            |     |
|           | Never                    | 41%    | 42%     | 35%        | 24% |
|           | One time                 | 19%    | 20%     | 17%        | 16% |
|           | Two times                | 15%    | 14%     | 16%        | 21% |
|           | Three times              | 8%     | 8%      | 11%        | 12% |
|           | Four times               | 6%     | 6%      | 6%         | 9%  |
|           | Five times               | 3%     | 3%      | 6%         | 7%  |
|           | Six times                |        |         |            |     |
|           | Seven times              |        |         |            |     |
|           |                          |        |         |            |     |
|           | Eight times              | 1 %    | 170     | 1 %0       | 170 |

### Read a magazine article on safety

| Target             |     | Commercial | ATP |     |
|--------------------|-----|------------|-----|-----|
| Never              | 4%  | 4%         | 3%  | 3%  |
| One time           | 4%  | 4%         | 2%  | 4%  |
| Two times          | 6%  | 6%         | 6%  | 7%  |
| Three times        | 7%  | 6%         | 6%  | 7%  |
| Four times         | 6%  | 6%         | 5%  | 7%  |
| Five times         | 7%  | 6%         | 8%  | 8%  |
| Six times          | 6%  | 7%         | 8%  | 7%  |
| Seven times        | 4%  | 4%         | 3%  | 3%  |
| Eight times        | 4%  | 4%         | 4%  | 4%  |
| Nine or more times | 54% | 53%        | 56% | 50% |

### Hired a CFI for training

| Never              | 31% | 30% | 43% | 76% |
|--------------------|-----|-----|-----|-----|
| One time           | 23% | 25% | 21% | 11% |
| Two times          |     |     |     |     |
| Three times        |     |     |     |     |
| Four times         | 4%  | 4%  | 3%  | 0%  |
| Five times         | 3%  | 2%  | 2%  | 1%  |
| Six times          | 2%  | 2%  | 2%  | 0%  |
| Seven times        | 1%  | 1%  | 0%  | 0%  |
| Eight times        |     |     |     |     |
| Nine or more times | 14% | 14% | 10% | 2%  |
|                    |     |     |     |     |

### Read an FAA publication

| Never              | 11% . | 11%   | 6%  | 10% |
|--------------------|-------|-------|-----|-----|
| One time           |       |       |     |     |
| Two times          |       |       |     |     |
| Three times        |       |       |     |     |
| Four times         |       |       |     |     |
| Five times         | 10% . | 9%    | 9%  | 10% |
| Six times          |       | 8%    | 9%  | 8%  |
| Seven times        |       |       |     |     |
| Eight times        |       |       |     |     |
| Nine or more times | 22% . | 19% . | 36% | 30% |

|             |   | ual                             |            |                               |                           |
|-------------|---|---------------------------------|------------|-------------------------------|---------------------------|
|             | Target  | Private                         | Commercial | ATP                           |                           |
|             | Never   |                                 |            |                               |                           |
|             | One time  | 8%                              | 9%         | 5%                            | 2%                        |
|             | Two times   |                                 |            |                               |                           |
|             | Three times   | 11%                             | 11%        | 7%                            | 4%                        |
|             | Four times  | 10%                             | 10%        | 8%                            | 3%                        |
|             | Five times  | 8%                              | 8%         | 7%                            | 5%                        |
|             | Six times   | 9%                              | 8%         | 8%                            | 5%                        |
|             | Seven times   |                                 |            |                               |                           |
|             | Eight times   | 2%                              | 1%         | 2%                            | 2%                        |
|             | Nine or more times  | 31%                             | 27%        | 47%                           | 72%                       |
| Asked anoti | her pilot a safety question   |                                 |            |                               |                           |
|             | Never   | 20%                             | 21%        | 17%                           | 9%                        |
|             | One time  |                                 |            |                               |                           |
|             | Two times   |                                 |            |                               |                           |
|             | Three times   |                                 |            |                               |                           |
|             | Four times  |                                 |            |                               |                           |
|             | Five times  |                                 |            |                               |                           |
|             | Six times   |                                 |            |                               |                           |
|             | Seven times   |                                 |            |                               |                           |
|             | Eight times   |                                 |            |                               |                           |
|             |   |                                 |            |                               |                           |
|             | Nine or more times  | 19%                             |            |                               |                           |
| Answered a  | Nine or more times  nother pilot's safety quest  Never  | 19%  tion33%                    | 17%        | 29%                           | 38%                       |
| Answered a  | Nine or more times  Inother pilot's safety quest  Never  One time   | 19%<br>tion<br>33%<br>9%        | 37%        | 29%                           | 38%<br>8%                 |
| Answered a  | Nine or more times  Inother pilot's safety quest  Never  One time  Two times  | 19%<br>tion<br>33%<br>9%<br>13% |            | 29%<br>15%<br>5%<br>10%       | 38% 8% 5% 9%              |
| Answered a  | Nine or more times  nother pilot's safety quest  Never  One time  Two times  Three times  |                                 |            | 29%<br>15%<br>5%<br>10%<br>9% | 38% 8% 5% 9% 6%           |
| Answered a  | Nine or more times  Inother pilot's safety quest Never One time Two times Three times Four times  | ion 33% 9% 13% 9%               | 37%        | 29%<br>15%<br>5%<br>10%<br>9% |                           |
| Answered a  | Nine or more times  nother pilot's safety quest  Never  One time  Two times  Three times  | ion 33% 9% 13% 9%               | 37%        | 29%<br>15%<br>5%<br>10%<br>9% |                           |
| Answered a  | Nine or more times  Inother pilot's safety quest Never One time Two times Three times Four times  |                                 |            | 29%                           | 38% 8% 5% 6% 7% 8%        |
| Answered a  | Nine or more times  Inother pilot's safety quest  Never  One time  Two times  Three times  Four times  Five times   |                                 |            | 29%                           |                           |
| Answered a  | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Eight times  |                                 |            | 29%                           |                           |
| Answered a  | Nine or more times  Inother pilot's safety quest  Never  One time  Two times  Four times  Five times  Six times  Seven times  |                                 |            | 29%                           |                           |
|             | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Eight times  |                                 |            | 29%                           |                           |
|             | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Light times Nine or more times  Inputer-based learning pros  |                                 |            | 29%                           | 38% 8% 5% 6% 7% 3% 2% 46% |
|             | Nine or more times  Inother pilot's safety quest Never One time Two times Four times Five times Six times Seven times Eight times Nine or more times  Inputer-based learning programmes   |                                 |            | 29%                           | 38% 8% 5% 6% 7% 3% 2% 46% |
|             | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Light times Nine or more times  Inputer-based learning pros  |                                 |            | 29%                           |                           |
|             | Nine or more times  Inother pilot's safety quest Never One time Two times Four times Five times Six times Seven times Light times Nine or more times  Inputer-based learning programmer.  Never One time  |                                 |            | 29%                           |                           |
|             | Nine or more times  |                                 |            | 29%                           |                           |
|             | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Eight times Nine or more times  Inputer-based learning programmer.  Never One time Two times Three times                   | 19%                             |            | 29%                           |                           |
|             | Nine or more times  Inother pilot's safety quest  Never One time Two times Four times Five times Six times Seven times Light times Nine or more times  Inputer-based learning program Never One time Two times Three times Three times Four times | 19%                             |            | 29%                           |                           |
|             | Nine or more times  | 19%                             |            | 29%                           |                           |
|             | Nine or more times  | 19%                             |            | 29%                           |                           |

TABLE B-2.

The most effective method for me to learn would be:

| Aerial | maneuvers | (e.g., | stalls) |
|--------|-----------|--------|---------|
|--------|-----------|--------|---------|

|                                  |     | Private | Commercial | ATP |
|----------------------------------|-----|---------|------------|-----|
| Talk to other pilots             | 5%  | 4%      | 7%         | 12% |
| Attend safety seminar            | ·4% | 4%      | 4%         | 4%  |
| Meet with a CFI                  | 55% | 58%     | 47%        | 29% |
| Self-study, practice             | 32% | 31%     | 37%        | 39% |
| Other                            | 3%  | 3%      | 5%         | 17% |
| Airport operating procedures     |     |         |            |     |
| Talk to other pilots             | 19% | 18%     | 19%        | 23% |
| Attend safety seminar            | 23% | 23%     | 24%        | 19% |
| Meet with a CFI                  | 24% | 24%     | 20%        | 8%  |
| Self-study, practice             | 31% | 32%     | 34%        | 41% |
| Other                            | 4%  | 4%      | 4%         | 10% |
| Airspace classification and use  |     |         |            |     |
| Talk to other pilots             | 3%  | 4%      | 3%         | 50/ |
| Attend safety seminar            | 31% | 30%     | 32%        | 27% |
| Meet with a CFI                  | 19% | 19%     | 17%        | 8%  |
| Self-study, practice             | 44% | 43%     | 45%        | 52% |
| Other                            | 4%  | 4%      | 4%         | 9%  |
| Air traffic control procedures   |     |         |            |     |
| Talk to other pilots             | 7%  | 7%      | 7%         | 9%  |
| Attend safety seminar            | 29% | 29%     | 29%        | 31% |
| Meet with a CFI                  | 26% | 27%     | 22%        | 8%  |
| Self-study, practice             | 45% | 33%     | 37%        | 42% |
| Other                            | 4%  | 4%      | 5%         | 10% |
| Aircraft systems and performance |     |         |            |     |
| Talk to other pilots             | 12% | 12%     | 10%        | 5%  |
| Attend safety seminar            |     | 7%      | 7%         | 7%  |
| Meet with a CFI                  | 21% | 22%     | 18%        | 8%  |
| Self-study, practice             | 57% | 55%     | 58%        | 60% |
| Other                            | 4%  | 4%      | 7%         | 20% |
| Emergency procedures             |     |         |            |     |
| Talk to other pilots             | 4%  | 4%      | 4%         | 4%  |
| Attend safety seminar            | 12% | 12%     | 9%         | 8%  |
| Meet with a CFI                  | 46% | 50%     | 36%        | 16% |
| Self-study, practice             | 34% | 30%     | 45%        | 52% |
| Other                            | 4%  | 4%      | 6%         | 20% |

| Federal Aviation Regulations         |        |         |            |       |
|--------------------------------------|--------|---------|------------|-------|
|                                      | Target | Private | Commercial | ATP   |
| Talk to other pilots                 |        | 210/    | 26%        | 22%   |
| Meet with a CFI                      | 1.40/  | 150/    | 110/       | 50%   |
| Meet with a CFI                      | 14%    | 400/    | 1170       | 60%   |
| Self-study, practice                 | 51%    | 49%     | 3/70       | 1.00% |
| Other                                | 3%     | 4%      | 470        | 1070  |
| Flight hazards (e.g., weather)       |        |         |            |       |
| Talk to other pilots                 | 10%    | 10%     | 11%        | 14%   |
| Attend safety seminar                | 39%    | 38%     | 37%        | 34%   |
| Meet with a CFI                      | 15%    | 17%     | 12%        | 3%    |
| Self-study, practice                 | 31%    | 30%     | 38%        | 47%   |
| Other                                | 5%     | 5%      | 3%         | 12%   |
| IFR procedures and techniques        |        |         |            | •     |
| Talk to other pilots                 | 5%     | 4%      | 6%         | 11%   |
| Attend safety seminar                | 8%     | 8%      | 13%        | 17%   |
| Meet with a CFI                      | 63%    | 65%     | 50%        | 19%   |
| Self-study, practice                 | 20%    | 18%     | 29%        | 42%   |
| Other                                | 5%     | 5%      |            | 11%   |
| Preflight (e.g., weight and balance) |        |         |            |       |
| Talk to other pilots                 | 4%     | 4%      |            | 7%    |
| Attend safety seminar                | 3%     | 3%      | 5%         | 9%    |
| Meet with a CFI                      | 21%    | 22%     | 21%        | 18%   |
| Self-study, practice                 | 69%    | 68%     | 69%        | 55%   |
| Other                                | 3%     | 3%      | 2%         | 11%   |
| Take off and landing procedures      |        |         |            |       |
| Talk to other pilots                 | 5%     | 5%      | 5%         | 10%   |
| Attend safety seminar                | 3%     | 4%      | 2%         | 4%    |
| Meet with a CFI                      | 45%    | 45%     | 43%        | 25%   |
| Self-study, practice                 | 44%    | 43%     | 46%        | 46%   |
| Other                                | 3%     | 3%      | 3%         | 15%   |
| Pilot decision making                |        |         |            |       |
| Talk to other pilots                 | 17%    | 16%     | 18%        | 31%   |
| Attend safety seminar                | 28%    | 28%     | 30%        | 27%   |
| Meet with a CFI                      | 18%    | 20%     | 13%        | 7%    |
| Self-study, practice                 | 35%    | 33%     | 37%        | 26%   |
| Other                                | 3%     | 3%      | 3%         | 10%   |

#### Human factors

|                          | Target | Private | Commercial | ATP |
|--------------------------|--------|---------|------------|-----|
| Talk to other pilots     | 18%    | 17%     | 15%        | 18% |
| Attend safety seminar    | 41%    | 39%     | 48%        | 50% |
| Meet with a CFI          | 9%     | 11%     | 6%         | 3%  |
| Self-study, practice     | 29%    | 30%     | 28%        | 18% |
| Other                    | 3%     | 3%      | 4%         | 11% |
| Crew resource management | •••    |         |            |     |
| Talk to other pilots     | 20%    | 21%     | 17%        | 15% |
| Attend safety seminar    | 38%    | 36%     | 46%        | 51% |
| Meet with a CFI          | 13%    | 14%     | 9%         | 5%  |
| Self-study, practice     |        |         |            |     |
| Other                    | 6%     | 6%      | 6%         | 17% |

## TABLE B-3. Non-FAA Safety seminars.

### Number of non-FAA seminars attended in last 12 months

| Target       |     | Commercial |     |     |
|--------------|-----|------------|-----|-----|
| None         | 62% | 65%        | 54% | 47% |
| One          |     |            |     |     |
| Two          |     |            |     |     |
| Three        |     |            |     |     |
| Four or more |     |            |     |     |
|              |     |            |     |     |

### Sponsor of last non-FAA seminar attended

| AOPA      | 24% | 27% | 2.7% | 11% |
|-----------|-----|-----|------|-----|
| EAA       |     |     |      |     |
| Local FBO |     |     |      |     |
| Other     |     |     |      |     |

# TABLE B-4. Topics covered at non-FAA seminars and their usefulness.

#### FAA regulations

|                          | Target  | Private | Commercial | ATP    |
|--------------------------|---------|---------|------------|--------|
| Yes**                    | 24%     | 23%     | 32%        | 41%    |
| If Yes, then usefulness: | (N=192) | (N=139) | (N=170)    | N=244) |
| 1 - [Low]                | 3%      | 5%      | 1%         | 5%     |
| 2                        | 10%     | 9%      | 13%        | 12%    |
| 3                        |         |         |            |        |
| 4                        | 25%     | 27%     | 22%        | 23%    |
| 5 -[High]                |         |         |            |        |
|                          |         |         |            |        |

<sup>\*\*</sup> Figure given is percentage of sample responding yes to this question. Remaining percentages of usefulness are based upon those who responded YES (i.e., N=192 for the Target group).

### Take-off and landing

| Tuke-ojj un |                           | Torget  | Drivata | Commercial | ATP       |
|-------------|---------------------------|---------|---------|------------|-----------|
|             | Yes                       | 14%     | 13%     | 21%        | 30%       |
|             | If Yes, then usefulness:  | (N=112) | (N=80)  | (N=113)    | (N=179)   |
|             | 1 - [Low]                 | 2%      | 3%      | 4%         | 5%        |
|             | 2                         | 13%     | 14%     | 11%        | 12%       |
|             | 3                         |         |         |            |           |
|             | 4                         |         |         |            |           |
|             | 5 -[High]                 |         |         |            |           |
|             | 3 -[High]                 | 27/0    |         |            | 5470      |
| Operating   | procedures (IFR or VFR)   |         |         |            |           |
|             | Yes                       | 24%     | 22%     | 33%        | 42%       |
|             | If Yes, then usefulness:  | (N=188) | (N=130) | (N=179)    | . (N=246) |
|             | 1 - [Low]                 | 2%      | 2%      | 2%         | 2%        |
|             | 2                         | 12%     | 14%     | 8%         | 7%        |
|             | 3                         | 31%     | 30%     | 35%        | 34%       |
|             | 4                         | 27%     | 27%     | 28%        | 27%       |
|             | 5 -[High]                 | 28%     | 27%     | 27%        | 31%       |
|             | J -[111gu]                |         |         |            |           |
| Airspace c  | lassification and use     |         |         |            |           |
|             | Yes                       | 24%     | 23%     | 29%        | 31%       |
|             | If Yes, then usefulness:  | (N=188) | (N=138) | (N=155)    | . (N=183) |
|             | 1 - [Low]                 | 2%      | 3%      | 0%         | 5%        |
|             | 2                         | 7%      | 6%      | 6%         | 12%       |
|             | 3                         | 21%     | 20%     | 22%        | 25%       |
|             | 4                         | 39%     | 43%     | 32%        | 29%       |
|             | 5 -[High]                 | 31%     | 28%     | 40%        | 30%       |
|             | p [8]                     |         |         |            |           |
| Air traffic | control procedures        |         |         |            |           |
|             | Yes                       | 19%     | 17%     | 28%        | 33%       |
|             | If Yes, then usefulness:. | (N=154) | (N=110) | (N=150)    | (N=193)   |
|             | 1 - [Low]                 | 3%      | 4%      | 1%         | 5%        |
|             | 2                         | 12%     | 11%     | 11%        | 10%       |
|             | 3                         | 35%     | 32%     | 37%        | 30%       |
|             | 4                         | 29%     | 31%     | 24%        | 27%       |
|             | 5 -[High]                 | 21%     | 21%     | 27%        | 28%       |
| TT7 . 41    |                           |         |         |            |           |
| Weather     |                           |         | 210/    | 200/       | 200/      |
|             | Yes                       | 24%     | 21%     | 50%        | 38%       |
|             | If Yes, then usefulness:  | (N=189) | (N=127) | (N=139)    | (N=225)   |
|             | 1 - [Low]                 | 3%      | 4%      | 3%         | 4%        |
|             | 2                         | 8%      | 11%     | 6%         | 8%        |
|             | 3                         |         |         |            |           |
|             | 4                         | 25%     | 24%     | 28%        | 26%       |
|             | 5 -[High]                 | 34%     | 33%     | 35%        | 31%       |

### Aircraft systems

|             |                          | Target  | Private | Commercial | ATP       |
|-------------|--------------------------|---------|---------|------------|-----------|
|             | Yes                      | 13%     | 12%     | 20%        | 37%       |
|             | If Yes, then usefulness: | (N=102) | (N=72)  | (N=110)    | . (N=221) |
|             | 1 - [Low]                | 4%      | 4%      | 3%         | 3%        |
|             | 2                        | 14%     | 15%     | 9%         | 2%        |
|             | 3                        | 20%     | 18%     | 28%        | 16%       |
|             | 4                        | 25%     | 26%     | 23%        | 27%       |
|             | 5 -[High]                | 37%     | 37%     | 37%        | 52%       |
| Pilot decis | ion making               |         |         |            |           |
|             | Yes                      | 25%     | 22%     | 35%        | 44%       |
|             | If Yes, then usefulness: | (N=196) | (N=130) | (N=187)    | (N=263)   |
|             | 1 - [Low]                | 3%      | 5%      |            | 3%        |
|             | 2                        | 10%     | 13%     | 9%         | 6%        |
|             | 3                        | 19%     | 22%     | 24%        | 24%       |
|             | 4                        | 32%     | 26%     | 31%        | 27%       |
|             | 5 -[High]                | 35%     | 34%     | 35%        | 41%       |
| Human fac   | ctors                    |         |         |            |           |
|             | Yes                      | 20%     | 17%     | 31%        | 45%       |
|             | If Yes, then usefulness: | (N=160) | (N=100) | (N=165)    | (N=267)   |
|             | 1 - [Low]                | 3%      | 4%      |            | 3%        |
|             | 2                        | 12%     | 16%     | 9%         | 8%        |
|             | 3                        | 23%     | 27%     | 26%        | 24%       |
|             | 4                        | 24%     | 17%     | 29%        | 26%       |
|             | 5 -[High]                | 36%     | 32%     | 35%        | 39%       |

# TABLE B-5. FAA Safety seminars.

### Number of FAA seminars attended in last 12 months

| None         | 59% | 57% | 62% | 81% |
|--------------|-----|-----|-----|-----|
| One          |     |     |     |     |
| Two          | 12% | 14% | 12% | 6%  |
| Three        |     |     |     |     |
| Four or more | 2%  | 2%  | 3%  | 1%  |

TABLE B-6.
Topics covered at FAA seminars and their usefulness.

| FAA     | regulations |
|---------|-------------|
| A 4 M A | I CA STREET |

|                                    | Target | Private | Commercial | ATP |
|------------------------------------|--------|---------|------------|-----|
| Yes                                |        |         |            |     |
| If Yes, then usefulness:           | ,      | ,       | ,          | ,   |
| 1 - [Low]                          |        |         |            |     |
| 2                                  |        |         |            |     |
| 3                                  |        |         |            |     |
| 4                                  |        |         |            |     |
| 5 -[High]                          | 20%    | 21%     | 25%        | 22% |
| Take-off and landings              |        |         |            |     |
| Yes                                | 13%    | 14%     | 12%        | 6%  |
| If Yes, then usefulness:           |        |         |            |     |
| 1 - [Low]                          | ,      | , ,     | ,          | ,   |
| 2                                  |        |         |            |     |
| 3                                  |        |         |            |     |
| 4                                  |        |         |            |     |
| 5 -[High]                          |        |         |            |     |
| Operating procedures (IFR and VFR) | )      |         | •          |     |
| Yes                                | 22%    | 22%     | 25%        | 12% |
| If Yes, then usefulness:           |        |         |            |     |
| 1 - [Low]                          |        |         |            |     |
| 2                                  |        |         |            |     |
| 3                                  |        |         |            |     |
| 4                                  |        |         |            |     |
| 5 -[High]                          |        |         |            |     |
| Airspace classification and use    |        |         |            |     |
| Yes                                | 28%    | 30%     | 27%        | 13% |
| If Yes, then usefulness:           |        |         |            |     |
| 1 - [Low]                          |        |         |            |     |
| 2                                  |        |         |            |     |
| 3                                  |        |         |            |     |
| 4                                  |        |         |            |     |
| 5 -[High]                          |        |         |            |     |
| Air traffic control procedures     |        |         |            |     |
| Yes                                | 22%    | 23%     | 22%        | 10% |
| If Yes, then usefulness:           |        |         |            |     |
| 1 - [Low]                          | ,      | , ,     | •          | . , |
| 2                                  |        |         |            |     |
| 3                                  |        |         |            |     |
| 4                                  |        |         |            |     |
| 5 -[High]                          |        |         |            |     |

#### Weather

| **                           | Target | Private | Commercial      | ATP     |
|------------------------------|--------|---------|-----------------|---------|
| Yes                          | 23%    | 23%     | 23%             | 9%      |
| If Yes, then usefulness: (N  | I=179) | (N=141) | (N=123)         | (N=51)  |
| 1 - [Low]                    | 5%     | 5%      | 2%              | 20/     |
| 2                            | 6%     | 6%      | 15%             | 160/    |
| 3                            | 31%    | 32%     | 27%             | 37%     |
| 4                            | 31%    | 29%     | 32%             | 1/10/2  |
| 5 -[High]                    | 28%    | 28%     | 24%             | 26%     |
| Aircraft systems             |        |         |                 |         |
| Yes                          | 8%     | 9%      | 9%              | 4%      |
| If Yes, then usefulness: (1  | N=61)  | (N=52)  | (N=47)          | (N=25)  |
| 1 - [Low]                    | 10%    | 12%     | 9%              | 80%     |
| 2                            | 12%    | 10%     | 13%             | Q0/     |
| 3                            | 36%    | 39%     | 26%             | 200%    |
| 4                            | 25%    | 23%     | 20%             | 200/    |
| 5 -[High]                    | 18%    | 17%     | 26%             | 44%     |
| Pilot decision making        |        |         |                 |         |
| Yes                          | 23%    | 23%     | 25%             | 100%    |
| If Yes, then usefulness: (N= | =184)  | (N=138) | (N=132)         | (NI-62) |
| 1 - [Low]                    | 2%     | 2%      | 2%              | 20/     |
| 2                            | 6%     | 7%      | 8%              | 13%     |
| 3                            | 30%    | 31%     | 30%             | 29%     |
| 4                            | 36%    | 35%     | 30%             | 20%     |
| 5 -[High]                    | 26%    | 25%     | 30%             | 26%     |
| Human factors                |        |         |                 |         |
| Yes                          | 20%    | 21%     | 19%             | 11%     |
| If Yes, then usefulness: (N= | =162)  | (N=128) | (N=104)         | (N=67)  |
| 1 - [Low]                    | 3%     | 3%      | 5%              | 80%     |
| 2                            | 9%     | 9%      | 11%             | 12%     |
| 3                            | 30%    | 28%     | 34%             | 28%     |
| 4                            | 31%    |         | 26%             | 22%     |
| 5 -[High]                    | 28%    | 27%     | 25%             | 30%     |
|                              |        |         | ······· 🛥 🍛 / U | 50/0    |

# TABLE B-7. Perceptions of FAA seminars.

### Seminars primarily designed for

| 1 - [Poor pilots] | Target<br>1% | Private | Commercial | ATP |
|-------------------|--------------|---------|------------|-----|
| 2                 | 2%           | 2%      | 4%         | 7%  |
| 3                 | 13%          | 12%     | 16%        | 28% |
| 4                 | 14%          | 13%     | 15%        | 15% |
| 5 - [All pilots]  | 70%          | 73%     | 63%        | 48% |

#### Presentations were

|                               |     |     | Commercial | ATP |
|-------------------------------|-----|-----|------------|-----|
| 1 - [Boring]                  | 4%  | 3%  | 5%         | 8%  |
| 2                             | 9%  | 9%  | 12%        | 18% |
| 3                             | 37% | 37% | 39%        | 45% |
| 4                             | 30% | 28% | 29%        | 19% |
| 5 - [Interesting]             | 21% | 23% | 16%        | 11% |
| Topics discussed are          |     |     |            |     |
| 1 - [Too complex]             | 2%  | 2%  | 2%         | 2%  |
| 2                             | 6%  | 6%  | 6%         | 3%  |
| 3                             | 72% | 73% | 67%        | 63% |
| 4                             | 15% | 15% | 19%        | 23% |
| 5 - [Too easy]                | 5%  | 4%  | 6%         | 9%  |
| Material presented is         |     |     |            |     |
| 1 - [Repetitive]              | 8%  | 9%  | 11%        | 13% |
| 2                             | 20% | 19% | 25%        | 30% |
| 3                             | 50% | 50% | 45%        | 48% |
| 4                             | 16% | 17% | 15%        | 9%  |
| 5 - [Innovative]              | 6%  | 6%  | 4%         | 1%  |
| Most pilots go to seminars to |     |     |            |     |
| 1 - [Socialize]               |     |     |            |     |
| 2                             | 7%  | 7%  | 10%        | 12% |
| 3                             | 25% | 25% | 25%        | 30% |
| 4                             | 35% | 35% | 33%        | 34% |
| 5 - [Learn]                   | 31% | 29% | 28%        | 18% |
| Most seminars are             |     |     |            |     |
| 1 - [Poorly publicized]       | 10% | 10% | 7%         | 8%  |
| 2                             | 15% | 13% | 17%        | 16% |
| 3                             | 23% | 23% | 26%        | 32% |
| 4                             | 25% | 25% | 25%        | 28% |
| 5 - [Well publicized]         | 28% | 29% | 26%        | 17% |
| Most seminars are             |     |     |            |     |
| 1 - [Poorly organized]        | 4%  | 4%  | 3%         | 4%  |
| 2                             |     |     |            |     |
| 3                             |     |     |            |     |
| 4                             | 30% | 29% | 34%        | 30% |
| 5 - [Well organized]          | 28% | 29% | 24%        | 11% |

# TABLE B-8. Perceptions of non-FAA seminars.

| Seminars | primarily | designed for |
|----------|-----------|--------------|
|----------|-----------|--------------|

| 1 (7)                         |     | Private | Commercial | ATP |
|-------------------------------|-----|---------|------------|-----|
| 1 - [Poor pilots]             | 1%  | 1%      | 1%         | 1%  |
| 2                             | 3%  |         | 4%         | 6%  |
| 3                             | 20% | 19%     | 23%        | 27% |
| 4                             | 20% | 19%     | 20%        | 18% |
| 5 - [All pilots]              | 36% | 58%     | 53%        | 48% |
| Presentations were            |     |         |            |     |
| 1 - [Boring]                  | 2%  | 2%      | 1%         | 3%  |
| 2                             | 4%  | 4%      | 6%         | 8%  |
| 3                             | 40% | 39%     | 37%        | 40% |
| 4                             | 36% | 36%     | 36%        | 34% |
| 5 - [Interesting]             | 19% | 19%     | 19%        | 16% |
| Topics discussed are          |     |         |            |     |
| 1 - [Too complex]             | 1%  | 1%      | 1%         | 0%  |
| 2                             | 6%  | 6%      | 5%         | 6%  |
| 3                             | 74% | 74%     | 76%        | 75% |
| 4                             |     |         |            |     |
| 5 - [Too easy]                | 3%  | 3%      | 4%         | 2%  |
| Material presented is         |     | •       |            |     |
| 1 - [Repetitive]              | 4%  | 5%      | 4%         | 6%  |
| 2                             | 13% | 14%     | 13%        | 14% |
| 3                             | 56% | 54%     | 54%        | 51% |
| 4                             | 21% | 21%     | 23%        | 22% |
| 5 - [Innovative]              | 6%  | 6%      | 7%         | 7%  |
| Most pilots go to seminars to |     |         |            |     |
| 1 - [Socialize]               | 5%  | 6%      | 4%         | 5%  |
| 2                             | 14% | 14%     | 14%        | 10% |
| 3                             | 30% | 29%     | 30%        | 32% |
| 4                             | 27% | 27%     | 28%        | 29% |
| 5 - [Learn]                   | 24% | 23%     | 26%        | 25% |
| Most seminars are             |     |         |            |     |
| 1 - [Poorly publicized]       | 15% | 17%     | 11%        | 12% |
| 2                             | 23% | 23%     | 22%        | 20% |
| 3                             | 33% | 32%     | 33%        | 35% |
| 4                             | 19% | 18%     | 20%        | 21% |
| 5 - [Well publicized]         | 10% | 10%     | 14%        | 13% |

#### Most seminars are

|                        | Target | Private | Commercial | ATP |
|------------------------|--------|---------|------------|-----|
| 1 - [Poorly organized] | 3%     | 4%      | 2%         | 2%  |
| 2                      |        |         |            |     |
| 3                      | 43%    | 43%     | 39%        | 42% |
| 4                      | 29%    | 29%     | 32%        | 32% |
| 5 - [Well organized]   | 15%    | 15%     | 19%        | 18% |

# TABLE B-9. Reasons for attending last seminar.

|   | Target | Private | Commercial | ATP |
|---|--------|---------|------------|-----|
| Never been to one; curious                  | 12%    | 12%     | 9%         | 5%  |
| Friend's recommendation                     | 11%    | 11%     | 9%         | 4%  |
| Wanted to learn about topic                 | 61%    | 58%     | 57%        | 34% |
| Obligated to go                             |        |         |            |     |
| Friends were going                          |        |         |            |     |
| Had to renew my certification               |        |         |            |     |
| Always try to attend                        |        |         |            |     |
| Other                                       |        |         |            |     |
| Note: Multiple responses allowed; therefore |        |         |            |     |

# TABLE B-10. Best way to encourage future attendance.

|                                    | Target | Private | Commercial | ATP |
|------------------------------------|--------|---------|------------|-----|
| Discuss more relevant topics       | 12%    | 11%     | 17%        | 24% |
| Offer more exciting presentations  | 12%    | 11%     | 15%        | 14% |
| Provide better meeting location    |        |         |            |     |
| Set more convenient meeting time   |        |         |            |     |
| Provide child care                 |        |         |            |     |
| Provide better publicity           |        |         |            |     |
| Get more of my friends to attend   |        |         |            |     |
| Other                              |        |         |            |     |
| Do nothing, I will never attend    |        |         |            |     |
| Do nothing, I always try to attend |        |         |            |     |

# TABLE B-11. Importance of factors in attendance decision.

#### Time

|                      | Target | Private | Commercial | ATP |
|----------------------|--------|---------|------------|-----|
| 1 - [Not important]  | 6%     | 6%      | 6%         | 4%  |
| 2                    |        |         |            |     |
| 3                    | 13%    | 13%     | 17%        | 13% |
| 4                    | 27%    | 26%     | 24%        | 22% |
| 5 - [Very important] | 51%    | 51%     | 49%        | 58% |

| Money |
|-------|
|-------|

|             | 1 - [Not important]  | Target       | Private | Commercial   | ATP       |
|-------------|----------------------|--------------|---------|--------------|-----------|
|             | 2                    |              | 27%     | 26%          | 20%       |
|             | 3                    | 1470<br>260/ | 13%     | 13%          | 14%       |
|             | 4                    | 1 20/        | 20%     | 24%          | 26%       |
|             | 5 - [Very important] | 150/         | 150/    | 26%          | 19%       |
|             | 5 (very important)   | 1370         | 13%     | 22%          | 22%       |
| Interest    |                      |              |         |              |           |
|             | 1 - [Not important]  | 2%           | 2%      | 2%           | 1%        |
|             | 2                    |              | 1%      | 1%           | 1%        |
|             | 3                    | 12%          | 12%     | 13%          | 12%       |
|             | 4                    | 37%          | 37%     | 32%          | 32%       |
|             | 5 - [Very important] | 49%          | 48%     | 52%          | 54%       |
| Motivation  |                      |              |         |              |           |
|             | 1 - [Not important]  | 5%           | 5%      | 4%           | 3%        |
|             | 2                    | 4%           | 4%      | 5%           | 4%        |
|             | 3                    | 25%          | 25%     | 27%          | 24%       |
|             | 4                    | 36%          | 37%     | 33v          | 36%       |
|             | 5 - [Very important] | 30%          | 29%     | 31%          | 33%       |
| Effort      |                      |              |         |              |           |
|             | 1 - [Not important]  | 6%           | 6%      | 6%           | 50/       |
|             | 2                    | 9%           | 9%      | 9%           | 5%        |
|             | 3                    | 37%          | 37%     | 41%          | 38%       |
|             | 4                    | 28%          | 29%     | 26%          | 36%       |
|             | 5 - [Very important] | 20%          | 19%     | 18%          | 15%       |
| Other prior |                      |              |         |              | 1570      |
|             | 1 - [Not important]  | 8%           | 8%      | <b>Q</b> 0/, | 90/       |
|             | 2 -                  | 7%           | 8%      | 60/          | 110/      |
|             | 3                    | 33%          | 32%     | 35%          | 2/10/     |
|             | 4                    | 27%          | 28%     | 26%          | 220/      |
|             | 5 - [Very important] | 25%          | 24%     | 26%          | 25%       |
| Confidence  |                      |              | 21/01   | 20/0         | 2370      |
|             | 1 - [Not important]  | 22%          | 24%     | 25%          | 29%       |
|             | 2                    | 14%          | 12%     | 11%          | 12%       |
|             | 3                    | 31%          | 31%     | 33%          | 32%       |
|             | 4                    | 21%          | 20%     | 19%          | 18%       |
|             | 5 - [Very important] | 12%          | 12%     | 11%          | 9%        |
| Support fro |                      |              |         |              | > 7 0     |
|             | 1 - [Not important]  | 46%          | 46%     | 49%          | 48%       |
|             | 2                    | 19%          | 18%     | 19%          | 16%       |
|             | 3                    | 20%          | 21%     | 18%          | 23%       |
|             | 4                    | 7%           | 7%      | 7%           | 10%       |
|             | 5 - [Very important] | 8%           | 8%      | 7%           | 40%       |
|             |                      |              |         |              | ····· 7/U |

| Peer | pressure |
|------|----------|
|------|----------|

| •         | 1 - [Not important]  |     |     | Commercial |     |
|-----------|----------------------|-----|-----|------------|-----|
|           | 2                    |     |     |            |     |
|           | 3                    |     |     |            |     |
|           | 4                    |     |     |            |     |
|           | 5 - [Very important] |     |     |            |     |
| Fear of f | ailure               |     |     |            |     |
|           | 1 - [Not important]  | 70% | 69% | 77%        | 78% |
|           | 2                    |     |     |            |     |
|           |                      |     |     |            |     |

## TABLE B-12.

#### Preferences for seminar venue and scheduling.

#### Meeting location

|            |                           | Target     | Private | Commercial | ATP |
|------------|---------------------------|------------|---------|------------|-----|
|            | Airport hangar            | 21%        | 22%     | 16%        | 11% |
|            | School or college classro | oom 27%    | 27%     | 30%        | 31% |
|            | FBO/Flying club meetin    | g room 33% | 33%     | 30%        | 22% |
|            | Friend's house            | 0%         | 0%      | 0%         | 1%  |
|            | Hotel meeting room        |            |         |            |     |
|            | Other                     | 6%         | 6%      | 5%         | 9%  |
| Class size |                           |            |         |            |     |
|            | Less than 10              | 7%         | 7%      | 7%         | 11% |
|            | 10 - 50                   | 76%        | 75%     | 74%        | 72% |
|            | 50 - 100                  | 15%        | 15%     | 15%        | 14% |
|            | More than 100             | 3%         | 3%      | 4%         | 3%  |
| Day        |                           |            |         |            |     |
|            | Monday                    | 10%        | 9%      | 9%         | 15% |
|            | Tuesday                   | 16%        | 18%     | 12%        | 14% |
|            | Wednesday                 | 24%        | 24%     | 23%        | 23% |
|            | Thursday                  | 13%        | 12%     | 15%        | 11% |
|            | Friday                    |            |         |            |     |
|            | Saturday                  | 27%        | 27%     | 27%        | 31% |
|            | Sunday                    | 5%         | 5%      | 6%         | 3%  |

 Morning
 19%
 19%
 23%
 38%

 Afternoon
 11%
 11%
 11%
 15%

 Evening
 70%
 70%
 66%
 47%

### Length of meeting

| Less than 20 minutes                          | Target                  | Private                 | Commercial | ATI               |
|---|-------------------------|-------------------------|------------|-------------------|
| Less than 30 minutes                          | 1%<br>22%               | 1%                      |            | 1%                |
| 60 - 90 minutes                               | 2270<br>610/            |                         | 21%        | 18%               |
| More than 90 minutes                          | 17%                     | 170/                    | 63%        | 57%               |
|   | 1 / / 0                 | 1 / /0                  | 15%        | 25%               |
| Preferred format                              |                         |                         |            |                   |
| Lectures by experts & question                |                         |                         |            |                   |
| and answer period                             | 54%                     | 53%                     | 59%        | 61%               |
| restimonials by fellow pilots &               |                         |                         |            |                   |
| question and answer period                    | 6%                      | 7%                      | 6%         | 7%                |
| Open group discussion                         | 2%                      | 3%                      | 2%         | 4%                |
| I own meeting format — no set agenda, lea     | ıder                    |                         |            |                   |
| answers questions raised by group             | 1%                      | 1%                      | 1%         | 3%                |
| Small group discussion on single topic        |                         |                         |            |                   |
| followed by large group discussion            | 3%                      | 2%                      | 2%         | 3%                |
| video or slide presentation followed by       |                         |                         |            |                   |
| discussion                                    | 29%                     | 29%                     | 27%        | 20%               |
| Practice exam on topic(s) followed by a       |                         |                         |            |                   |
| question and answer period about exam.        | 3%                      | 3%                      | 2%         | 0%                |
| Other   | 3%                      | 3%                      | 2%         | 3%                |
|   |                         | hip and usage.          |            |                   |
| Use a computer at home – Yes                  | 71%                     | 71%                     | Commercial | ATP               |
| Have used a computer flight                   |                         |                         |            |                   |
| simulation program - Yes                      | 55%                     | 55%                     | 60%        | 59%               |
| is it likely you will buy a computer for your | •                       |                         |            |                   |
| home in the next year - Yes                   | 36%                     | 38%                     | 34%        | 37%               |
|   |                         |                         |            | 5770              |
| Would you use FAA computer safety progr       |                         |                         |            |                   |
| Certainly                                     | 41%                     | 40%                     | 42%        | 28%               |
| Possibly                                      | 38%                     | 40%                     | 33%        | 43%               |
| Uncertain                                     | 8%                      | 8%                      | 8%         | 9%                |
| Not likely                                    | 10%                     | 9%                      | 13%        | 15%               |
| Never   | 4%                      | 4%                      | 4%         | 6%                |
| What is the most you would pay for FAA co     |                         |                         |            |                   |
|   | omputer cafet           | N BROGRAMA              |            |                   |
| \$0   |                         |                         | 201        |                   |
| T   | 7%                      | 6%                      | 8%         | 11%               |
| Less than \$10                                | 7%<br>10%               | 6%<br>10%               | 12%        | 16%               |
| Less than \$10<br>\$10 to \$30                | 7%<br>10%<br>21%<br>45% | 6%<br>10%<br>21%<br>46% | 12%        | 16%               |
| \$10 to \$30<br>\$31 to \$100                 | 7%                      |                         |            | 16%<br>25%<br>39% |
| Less than \$10                                | 7%                      |                         |            | 16%<br>25%<br>39% |

| What is the best way for you to obtain | FAA computer | safety programs |
|--|--------------|-----------------|
|--|--------------|-----------------|

| *****                            | Target | Private | Commercial | ATP |
|----------------------------------|--------|---------|------------|-----|
| Will not use                     | 8%     | 6%      | 9%         | 12% |
| Down load from a network         | 22%    | 21%     | 24%        | 30% |
| Buy at a computer store          | 3%     | 3%      | 4%         | 4%  |
| Order through the mail           | 47%    | 49%     | 44%        | 42% |
| Buy at a FBO                     |        |         |            |     |
| Describe your computer equipment |        |         |            |     |
| MAC                              | 11%    | 11%     | 10%        | 12% |
| IBM                              | 60%    | 59%     | 56%        | 59% |
| CD-ROM                           | 31%    | 32%     | 28%        | 31% |
| Diskette                         | 46%    | 46%     | 42%        | 40% |
| E-Mail                           | 23%    | 22%     | 25%        | 26% |
| I have no computer               | 22%    | 21%     | 26%        | 22% |
| Note: Multiple responses perr    |        |         |            |     |

# TABLE B-14. Video use.

### Q26. Have you viewed aviation safety video at home

| — Yes  |                    | <b>Private</b><br>62% |     | <b>ATP</b> 42% |
|--|--------------------|-----------------------|-----|----------------|
| Would you view FAA aviation safety                 | videos             |                       |     |                |
| Certainly  | 53%                | 54%                   | 53% | 34%            |
| Possible   |                    |                       |     |                |
| Uncertain  |                    |                       |     |                |
| Not likely   | 3%                 | 3%                    | 4%  | 9%             |
| Never  | 1%                 | 1%                    | 1%  | 4%             |
| What is the best way for you to obtain  Local FSDO | 21%                | 20%                   |     |                |
| Local library Video rental store                   |                    | 33%                   | 34% | 35%            |
| Grocery store Other                                | 3%                 | 3%                    | 2%  | 3%             |
| What is the most you would pay to bu               | y a FAA safety via | leo                   |     |                |
| Will not use                                       | 2%                 | 2%                    |     | 7%             |
| \$0  |                    |                       |     |                |
| Less than \$5                                      | 13%                | 13%                   | 13% | 15%            |
| \$5 to \$10  | 50%                | 50%                   | 52% | 43%            |
| More than \$10                                     | 25%                | 25%                   | 20% | 15%            |

### What is the most you would pay to rent a FAA safety video

|               | Target | Private | Commercial | ATP |
|---------------|--------|---------|------------|-----|
| Will not use  | 2%     | 1%      |            | 5%  |
| \$0           | 7%     | 6%      | 10%        | 16% |
| Less than \$3 | 50%    | 50%     | 50%        | 48% |
| \$3 to \$5    |        |         |            |     |
| More than \$5 |        |         |            |     |

## TABLE B-15. Self-assessment.

#### Preflight planning

| Preflight planning    |              |        |         |            |     |
|-----------------------|--------------|--------|---------|------------|-----|
|                       |              | Target | Private | Commercial | ATP |
| 1 - [Poor             | ː]           | 0%     | 0%      |            | 0%  |
|                       | ·····        |        |         |            |     |
|                       | •••••        |        |         |            |     |
|                       | •••••        |        |         |            |     |
| 5 - [Exce             | ellent]      | 28%    | 25%     | 45%        | 62% |
| Ground handling       |              |        |         |            |     |
| 1 <b>-</b> [Poor      | ]            | 0%     | 0%      | 0%         | 0%  |
|                       |              |        |         |            |     |
|                       | •••••        |        |         |            |     |
|                       | •••••        |        |         |            |     |
|                       | ellent]      |        |         |            |     |
| Take off and landing  | g procedures |        |         |            |     |
| 1 - [Poor             | :]           | 0%     | 0%      | 0%         | 0%  |
|                       | •••••        |        |         |            |     |
|                       | •••••        |        |         |            |     |
|                       | •••••        |        |         |            |     |
|                       | ellent]      |        |         |            |     |
| Basic VFR flying tec  | hniques      |        |         |            |     |
| 1 - [Poor             | .]           | 0%     | 1%      | 0%         | 1%  |
| 2                     | ·····        | 1%     | 1%      | 0%         | 5%  |
| 3                     | ••••••       | 17%    | 18%     | 10%        | 20% |
|                       |              |        |         |            |     |
| 5 - [Exce             | ellent]      | 30%    | 25%     | 53%        | 47% |
| Instrument flying pro | ocedures     |        |         |            |     |
| 1 - [Poor             | ·]           | 22%    | 27%     | 5%         | 0%  |
| 2                     |              | 25%    | 28%     | 13%        | 1%  |
|                       |              |        |         |            |     |
| 4                     |              | 21%    | 17%     | 34%        | 27% |
| 5 - [Exce             | ellent]      | 8%     | 5%      | 20%        | 65% |

### Emergency procedures

|               | 1 [Dec.]               | Target | Private | Commercial | ATP  |
|---------------|------------------------|--------|---------|------------|------|
|               | 1 - [Poor]             |        | 1%      | 1%         | 0%   |
|               | 2                      |        | 15%     | 6%         | 1%   |
|               | 3                      | 46%    | 49%     | 29%        | 9%   |
|               | 4                      | 30%    | 29%     | 41%        | 34%  |
|               | 5 - [Excellent]        | 9%     | 7%      | 24%        | 56%  |
| Weather an    | d its impact on flight |        |         |            |      |
|               | 1 - [Poor]             | 1%     | 1%      | 1%         | 0%   |
|               | 2                      | 8%     | 8%      | 4%         | 0%   |
|               | 3                      | 33%    | 37%     | 22%        | 10%  |
|               | 4                      | 39%    | 37%     | 43%        | 34%  |
|               | 5 - [Excellent]        | 19%    | 17%     | 30%        | 56%  |
| Air traffic o | control procedures     |        |         |            |      |
|               | 1 - [Poor]             | 1%     | 2%      | 1%         | 0%   |
|               | 2                      | 13%    | 15%     | 6%         | 1%   |
|               | 3                      | 34%    | 36%     | 21%        | 10%  |
|               | 4                      | 38%    | 36%     | 46%        | 36%  |
|               | 5 - [Excellent]        | 13%    | 11%     | 27%        | 53%  |
| Navigation    |                        |        |         |            |      |
|               | 1 - [Poor]             | 0%     | 0%      | 00/        | 00/  |
|               | 2                      | 2%     | 70/     |            | 0%   |
|               | 3                      | 32%    | 2/0/    | 170/       | 40/  |
|               | 4                      | 46%    | 18%     | 2 90/      | 200/ |
|               | 5 - [Excellent]        | 31%    | 27%     | 49%        | 66%  |
| Aviator deci  | ision making           |        |         |            |      |
|               | 1 - [Poor]             | 0%     | 0%      | Λ0/.       | 00/  |
|               | 2                      | 3%     | 30/2    |            | 070  |
|               | 3                      | 26%    | 27%     | 150/       | U70  |
|               | 4                      | 50%    | 53%     | 45%        | 200/ |
|               | 5 - [Excellent]        | 21%    | 17%     | 39%        | 64%  |
| Human faci    |                        |        |         |            |      |
| , , , ,       | 1 - [Poor]             | 1%     | 1%      | 10/        | 00/  |
|               | 2 -                    | 5%     | 5%      | 30/        | 10/  |
|               | 3                      | 36%    | 37%     | 250%       | 110/ |
|               | 4                      | 42%    | 43%     | 1/10/      | 420/ |
|               | 5 - [Excellent]        | 16%    | 14%     | 27%        | 42%  |
| Air space re  |                        |        |         |            |      |
| •             | 1 - [Poor]             | 2%     | 20%     | 20/        | 10/  |
|               | 2                      | 16%    | 17%     |            | 170  |
|               | 3                      | 43%    | ΔΔ%     | 210/       | 2007 |
|               | 4                      | 33%    | 37%     |            | 28%  |
|               | 5 - [Excellent]        | 6%     | 5%      |            | 34%  |
|               |                        |        |         |            | 51/0 |

# TABLE B-16. Comparison to other pilots.

| I am more safety conscious                |        |         |            |     |
|---|--------|---------|------------|-----|
|   | Target | Private | Commercial | ATP |
| 1 - [Strongly disagree]                   | 0%     | 0%      | 0%         | 0%  |
| 2 - [Disagree]                            | 1%     | 1%      | 2%         | 1%  |
| 3 - [Neutral]                             | 33%    | 34%     | 23%        | 25% |
| 4 - [Agree]                               | 48%    | 48%     | 49%        | 47% |
| 5 - [Strongly Agree]                      | 17%    | 17%     | 27%        | 27% |
| I am more willing to study safety         |        |         |            |     |
| 1 - [Strongly disagree]                   | 0%     | 0%      | 0%         | 0%  |
| 2 - [Disagree]                            |        |         |            |     |
| 3 - [Neutral]                             |        |         |            |     |
| 4 - [Agree]                               | 47%    | 49%     | 46%        | 46% |
| 5 - [Strongly Agree]                      | 13%    | 12%     | 21%        | 16% |
| I do better on FAA written exams          |        |         |            |     |
| 1 - [Strongly disagree]                   | 0%     | 1%      | 0%         | 1%  |
| 2 - [Disagree]                            | 9%     | 9%      | 7%         | 4%  |
| 3 - [Neutral]                             | 50%    | 51%     | 41%        | 47% |
| 4 - [Agree]                               |        |         |            |     |
| 5 - [Strongly Agree]                      |        |         |            |     |
| I do better on FAA check rides            |        |         |            |     |
| 1 - [Strongly disagree]                   | 1%     | 1%      | 0%         | 1%  |
| 2 - [Disagree]                            |        |         |            |     |
| 3 - [Neutral]                             |        |         |            |     |
| 4 - [Agree]                               | 24%    | 22%     | 34%        | 38% |
| 5 - [Strongly Agree]                      | 5%     | 4%      | 12%        | 15% |
| I am willing to do more to be a safe pile | ot     |         |            |     |
| 1 - [Strongly disagree]                   | 0%     | 0%      | 0%         | 0%  |
| 2 - [Disagree]                            | 1%     | 1%      | 0%         | 0%  |
| 3 - [Neutral]                             | 21%    | 21%     | 15%        | 21% |
| 4 - [Agree]                               |        |         |            |     |
| 5 - [Strongly Agree]                      | 23%    | 22%     | 32%        | 30% |
| I have fewer "close calls"                |        |         |            |     |
| 1 - [Strongly disagree]                   | 1%     | 1%      | 1%         | 1%  |
| 2 - [Disagree]                            | 5%     | 5%      | 7%         | 6%  |
| 3 - [Neutral]                             | 39%    | 39%     | 36%        | 36% |
| 4 - [Agree]                               | 37%    | 37%     | 36%        | 36% |
| 5 - [Strongly Agree]                      | 17%    | 18%     | 21%        | 21% |

| I | know | more | about | the | causes | of | accidents |
|---|------|------|-------|-----|--------|----|-----------|
|---|------|------|-------|-----|--------|----|-----------|

|                                       | Target | Private | Commercial | ATP |
|---------------------------------------|--------|---------|------------|-----|
| 1 - [Strongly disagree]               | 1%     | 1%      | 0%         | 0%  |
| 2 - [Disagree]                        |        |         |            |     |
| 3 - [Neutral]                         | 49%    | 51%     | 39%        | 39% |
| 4 - [Agree]                           |        |         |            |     |
| 5 - [Strongly Agree]                  |        |         |            |     |
| I am more interested in safety issues |        |         |            |     |
| 1 - [Strongly disagree]               | 1%     | 1%      | 1%         | 0%  |
| 2 - [Disagree]                        | 3%     | 2%      | 2%         | 3%  |
| 3 - [Neutral]                         |        |         |            |     |
| 4 - [Agree]                           | 42%    | 43%     | 41%        | 44% |
| 5 - [Strongly Agree]                  |        |         |            |     |
| I take fewer risks when flying        |        |         |            |     |
| 1 - [Strongly disagree]               | 0%     | 1%      | 0%         | 1%  |
| 2 - [Disagree]                        | 2%     | 2%      | 3%         | 1%  |
| 3 - [Neutral]                         | 24%    | 23%     | 21%        | 22% |
| 4 - [Agree]                           |        |         |            |     |
| 5 - [Strongly Agree]                  |        |         |            |     |

### TABLE B-17.

### How much of the information required for safe flight did you think you:

#### I learned at a safety seminar

| I learned at a safety seminar  |        |         |                   |     |
|--------------------------------|--------|---------|-------------------|-----|
|                                | Target | Private | <b>Commercial</b> | ATP |
| 1 - [None]                     | 16%    | 18%     | 12%               | 17% |
| 2 - [Very little]              | 47%    | 46%     | 50%               | 53% |
| 3 - [About half]               | 29%    | 29%     | 30%               | 22% |
|                                | 7%     |         |                   |     |
|                                | 1%     |         |                   |     |
| I learned from a textbook      |        |         |                   |     |
| 1 - [None]                     | 1%     | 1%      | 0%                | 2%  |
|                                | 22%    |         |                   |     |
|                                | 42%    |         |                   |     |
|                                | 30%    |         |                   |     |
|                                | 5%     |         |                   |     |
| I learned from watching videos |        |         |                   |     |
| 1 - [None]                     | 175    | 17%     | 16%               | 12% |
|                                | 46%    |         |                   |     |
|                                | 25%    |         |                   |     |
| _ (                            |        |         |                   |     |

| Learned from | $\boldsymbol{a}$ | CFI |
|--------------|------------------|-----|
|--------------|------------------|-----|

|               |                            | Target | Private | Commercial | ATP |
|---------------|----------------------------|--------|---------|------------|-----|
|               | 1 - [None]                 | 1%     | 1%      | 2%         | 12% |
|               | 2 - [Very little]          | 8%     | 7%      | 11%        | 27% |
|               | 3 - [About half]           |        |         |            |     |
|               | 4 - [Most]                 |        |         |            |     |
|               | 5 - [Almost all]           | 15%    | 16%     | 12%        | 5%  |
| Memorized l   | but never understood       |        |         |            |     |
|               | 1 - [None]                 | 35%    | 34%     | 41%        | 43% |
|               | 2 - [Very little]          | 51%    | 50%     | 48%        | 50% |
|               | 3 - [About half]           | 11%    | 12%     | 9%         | 5%  |
|               | 4 - [Most]                 |        |         |            |     |
|               | 5 - [Almost all]           | 0%     | 0%      | 0%         | 0%  |
| I learned fro | om a computerized tutorial |        |         |            |     |
|               | 1 - [None]                 | 71%    | 71%     | 70%        | 53% |
|               | 2 - [Very little]          | 21%    | 20%     | 25%        | 36% |
|               | 3 - [About half]           | 5%     | 6%      | 5%         | 9%  |
|               | 4 - [Most]                 | 3%     | 3%      | 1%         | 2%  |
|               | 5 - [Almost all]           | 0%     | 0%      | 0%         | 0%  |
| Learned in a  | a classroom                |        |         |            |     |
|               | 1 - [None]                 | 14%    | 17%     | 7%         | 1%  |
|               | 2 - [Very little]          | 32%    | 34%     | 30%        | 15% |
|               | 3 - [About half]           |        |         |            |     |
|               | 4 - [Most]                 | 17%    | 14%     | 21%        | 31% |
|               | 5 - [Almost all]           | 6%     | 5%      | 7%         | 13% |
|               |                            |        |         |            |     |

### TABLE B-18.

#### Stress Factors.

#### I was in a stressful situation in last 12 months

| Yes                              | <b>Target</b><br>46%   |                  | Commercial<br>47% |     |
|----------------------------------|------------------------|------------------|-------------------|-----|
| Number of flights during last 12 | months that put you in | a stressful sitt | uation            |     |
| 1                                | 21%                    | 22%              | 18%               | 17% |
| 2                                | 14%                    | 13%              | 15%               | 14% |
| 3                                | 5%                     | 5%               | 6%                | 7%  |
| 4                                | 3%                     | 3%               | 3%                | 5%  |
| 5                                | 1%                     | 1%               | 1%                | 3%  |
| 6                                | 1%                     | 1%               | 1%                | 2%  |
| 7                                | 0%                     | 0%               | 1%                | 1%  |
| 8                                | 1%                     | 0                | 0                 | 1%  |
| 9 or more                        | 1%                     | 1%               | 3%                | 6%  |

How often were these contributing factors in your stressful flights in the last 12 months. (Percentages based upon respondents to Question 35 – "Have you had a stressful event in previous 12 months." Approximate N=350, 280, 250, and 350, for Target, Private, Commercial, & Airline Transport, respectively)

| Fuel  | problems |
|-------|----------|
| I'uei | proviens |

| Fuel problems                      |               |         |            |     |
|------------------------------------|---------------|---------|------------|-----|
|                                    | Target        | Private | Commercial | ATP |
| 0                                  | 86%           | 88%     | 80%        | 77% |
|                                    | 10%           |         |            |     |
| 2                                  | 2%            | 2%      | 2%         |     |
|                                    | 1%            |         |            |     |
| 4                                  | 1%            | 1%      | 2%         | 1%  |
| 5 or more                          | 0%            | 0%      | 1%         | 1%  |
| Mistakes made by pilots in other   | aircraft      |         |            |     |
|                                    | 69%           |         |            |     |
| 1                                  | 17%           | 17%     | 22%        | 19% |
| 2                                  | 7%            | 8%      | 7%         | 11% |
| 3                                  | 3%            | 3%      | 4%         | 4%  |
| 4                                  | 2%            | 2%      | 4%         | 4%  |
| 5 or more                          | 2%            | 2%      | 3%         | 3%  |
| Navigational problems              |               |         |            |     |
|                                    | 82%           | 81%     | 84%        | 83% |
| 1                                  | 14%           | 14%     | 12%        | 10% |
| 2                                  | 2%            | 3%      | 1%         | 4%  |
| 2                                  | 1%            | 1%      |            | 1%  |
|                                    | 0%            |         | 0%         |     |
|                                    | 0%            |         |            |     |
| Physiological problems (e.g., illn | ness fatione) |         |            |     |
|                                    | 88%           | 89%     | 82%        | 63% |
|                                    | 7%            |         |            |     |
|                                    | 3%            |         |            |     |
| 2                                  | 1%            | 0%      | 2%         | 5%  |
| 4                                  | 0%            | 0%      | 1%         | 4%  |
| 5 or more                          | 1%            | 1%      | 3%         | 7%  |
| Family commitments                 |               |         |            |     |
| 0                                  | 93%           |         |            |     |
|                                    | 6%            |         |            |     |
|                                    | 1%            |         |            |     |
|                                    | 1%            |         |            |     |
|                                    | 0%            |         |            |     |
|                                    |               |         |            |     |
| J of more                          |               |         |            | 170 |

### Passenger requirements

| 0   | Target | Private | Commercial                              | ATP  |
|---|--------|---------|---|------|
| 1   | 8%     | 7%      | 60%                                     | 140/ |
| 2   | 1%     | 10/2    | 20/                                     | 14%  |
| 3   | 0%     | n%      | 10/                                     | 6%   |
| 4   | 0%     | 0%      | 10/                                     | 3%   |
| 5 or more                                   | 0%     | 0%      | 10/                                     | 3%   |
|   |        | 0 / 0   | 170                                     | 3%   |
| Job related demands                         |        |         |   |      |
| 0   | 89%    | 90%     | 78%                                     | 58%  |
| I   | 5%     | 4%      | 9%                                      | 14%  |
| 2   | 3%     | 3%      | 3%                                      | 70/  |
| 3   | 1%     |         | 3%                                      | 70/  |
| 4   | 1%     | 1%      | 1%                                      | 60/  |
| 5 or more                                   | 1%     | 1%      | 7%                                      | 00%  |
|   |        | 2,0,    | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 7/0  |
| A bad decision (e.g., go/no-go, flight into |        |         |   |      |
| 0   | 74%    | 76%     | 74%                                     | 79%  |
| l   | 18%    | 17%     | 18%                                     | 13%  |
| 2   | 4%     | 4%      | 6%                                      | 30/  |
| 3   | 2%     | 2%      | 3%                                      | 2%   |
| 4   | 1%     | 1%      | 0%                                      | 10/  |
| 5 or more                                   | 1%     | 1%      | 1%                                      | 1%   |
| Mechanical problems with the airplane       |        |         |   |      |
| 0   | 57%    | 57%     | 56%                                     | 110/ |
| 1   | 30%    | 31%     | 27%                                     | 220/ |
| 2   | 7%     | 4%      | Q0/2                                    | 120% |
| 3   | 2%     | 1%      | 30/2                                    | 60/  |
| 4   | 2%     | 2%      | 20%                                     | 10/  |
| 5 or more                                   | 3%     | 3%      | 2%                                      | 10%  |
|   |        |         | 2/0                                     | 470  |
| Weather problems (e.g., sudden storm)       |        |         |   |      |
| 0   | 51%    | 54%     | 45%                                     | 37%  |
| 1   | 34%    | 33%     | 32%                                     | 33%  |
| 2   | 8%     | 6%      | 12%                                     | 10%  |
| 3   | 3%     | 3%      | 4%                                      | 9%   |
| 4   | 1%     | 1%      | 3%                                      | 30/0 |
| 5 or more                                   | 3%     | 3%      | 5%                                      | 8%   |

TABLE B-19.
Accident involvement.

| I have been the pilot-in-command | of an aircraft involved in an accident or | incident resulting in: |
|----------------------------------|---|------------------------|
|----------------------------------|---|------------------------|

|                             |        |         |            | -   |
|-----------------------------|--------|---------|------------|-----|
|                             | Target | Private | Commercial | ATP |
| Damage to an aircraft - YES | 15%    | 13%     | 20%        | 18% |
| Damage to property - YES    | 2%     | 2%      | 2%         | 2%  |
| Personal injury - YES       |        |         |            |     |

# TABLE B-20. Flying Experience.

1%

### Hours logged as pilot-in-command - Airplane

|            |                        | Target        | Private | Commercial | ATP  |
|------------|------------------------|---------------|---------|------------|------|
| Last 12 m  |                        |               |         |            |      |
|            | Under 25               | 32%           | 33%     | 28%        | 20%  |
|            | 25 to 50               | 29%           | 31%     | 19%        | 5%   |
|            | Over 50                | 39%           | 36%     | 54%        | 75%  |
| Career     |                        |               |         |            |      |
|            | Under 100              | 7%            | 9%      | 1%         | 0%   |
|            | 100 to 400             | •••••         | 39%     | 47%        | 12%  |
|            | Over 400               | 53%           | 44%     | 87%        | 99%  |
| Hours log  | ged as pilot-in-comman | d – Night     |         |            |      |
| Last 12 m  | onths                  |               |         |            |      |
|            | Under 25               | 88%           | 89%     | 75%        | 34%  |
|            | 25 to 50               | 7%            | 6%      | 13%        | 14%  |
|            | Over 50                | 5%            | 5%      | 12%        | 52%  |
| Career     |                        |               |         |            | 32/0 |
|            | Under 100              | 65%           |         | 34%        | 1%   |
|            | 100 to 400             | 22%           | 18%     | 37%        | 11%  |
|            | Over 400               | 13%           | 9%      | 29%        | 88%  |
| Hours log  | ged as pilot-in-comman | d – Simulator |         |            |      |
| Last 12 me | onths                  |               |         |            |      |
|            | Under 25               | 93%           | 94%     | 91%        | 74%  |
|            | 25 to 50               | 5%            | 4%      | 7%         | 130/ |
|            | Over 50                | 2%            | 2%      | 3%         | 120/ |
| Career     |                        |               |         |            | 12/0 |
|            | Under 100              | 82%           | 88%     | 73%        | 19%  |
|            | 100 to 400             | 13%           | 9%      | 19%        | 37%  |
|            | Over 400               | 5%            | 3%      | 8%         | 44%  |

### Hours logged as pilot-in-command - Actual Instrument

|             |                          | Target                 | Private | Commercial | ATP  |
|-------------|--------------------------|------------------------|---------|------------|------|
| Last 12 m   | onths                    |                        |         |            |      |
|             | Under 25                 | 89%                    | 91%     | 78%        | 39%  |
|             | 25 to 50                 | 7%                     | 6%      | 14%        | 23%  |
|             | Over 50                  | 4%                     | 3%      | 8%         | 39%  |
| Career      |                          |                        |         |            |      |
|             | Under 100                | 75%                    | 82%     | 52%        | 3%   |
|             | 100 to 400               | 18%                    | 16%     | 39%        | 17%  |
|             | Over 400                 | 8%                     | 3%      | 18%        | 80%  |
| Hours log   | gged as pilot-in-command | l – Complex single-er  | ıgine   |            |      |
| Last 12 m   |                          | , manager an           | •       |            |      |
|             | Under 25                 | 70%                    | 73%     | 57%        | 79%  |
|             | 25 to 50                 |                        |         |            |      |
|             | Over 50                  |                        |         |            |      |
| Career      |                          |                        |         |            |      |
|             | Under 100                | 57%                    | 66%     | 28%        | 21%  |
|             | 100 to 400               | 19%                    | 16%     | 30%        | 22%  |
|             | Over 400                 | 24%                    | 19%     | 42%        | 58%  |
| Hours log   | gged as pilot-in-commana | l – multi-engine pisto | n       |            |      |
| Last 12 m   |                          | 0 1                    |         |            |      |
|             | Under 25                 | 93%                    | 95%     | 80%        | 78%  |
|             | 25 to 50                 |                        |         |            |      |
|             | Over 50                  |                        |         |            |      |
| Career      |                          |                        | 5 / 0   | £1/0       | 10/0 |
|             | Under 100                | 85%                    | 90%     | 60%        | 27%  |
|             | 100 to 400               |                        |         |            |      |
|             | Over 400                 | 10%                    | 6%      | 23%        | 58%  |
| Hours log   | ged as pilot-in-command  | l – Turhine            |         |            |      |
| Last 12 m   | •                        | - X #1 0 11 C          |         |            |      |
| Last 12 III |                          | 020/                   | 050/    | 0.507      | 010/ |
|             | Under 25                 |                        |         |            |      |
|             | 25 to 50                 | 70/                    | 1%      |            | 3%   |
| Career      | Over 50                  | / 70                   | 5%      | 13%        | 66%  |
| Carcer      | Under 100                | 020/                   | 000/    | 710/       | 007  |
|             | 100 to 400               | 0370<br>10/            | 90%     | / 1 %      | 8%   |
|             | Over 400                 |                        |         |            |      |
|             | Over 400                 | 10%                    | 10%     | 25%        | 89%  |

## TABLE B-21. Military flying experience.

#### I have flown as pilot-in-command as a:

|                               | Target | Private | Commercial | ATP |
|-------------------------------|--------|---------|------------|-----|
| Military pilot – YES          | 13%    | 7%      | 23%        | 51% |
| Commercial pilot for hire – Y |        |         |            |     |
| Airline pilot – YES           | 1% *   | 1%*     | 4%         | 62% |

<sup>\*</sup>These entries are probably erroneous, since the holder of a Private certificate could not serve as a commercial crew member. However, it is possible that an individual previously held a higher level certificate and surrendered it.

## TABLE B-22. Characteristics of aircraft most frequently flown.

#### Aircraft flown most frequently in last 12 months

|          |                    | Target | Private | Commercial | ATP |
|----------|--------------------|--------|---------|------------|-----|
| Category |                    | O      |         |            |     |
|          | Airplane           | 96%    | 97%     | 94%        | 98% |
|          | Rotorcraft         | 6%     | 3%      | 5%         | 2%  |
|          | Lighter-than-air   | 0%     | 0%      | 0%         | 0%  |
|          | Glider             |        |         |            |     |
| Class    |                    |        |         |            |     |
|          | Single-engine land | 88%    | 90%     | 76%        | 13% |
|          | Multi-engine land  | 9%     | 7%      | 18%        | 85% |
|          | Single-engine sea  |        |         |            |     |
|          | Multi-engine sea   |        |         |            |     |
|          | Helicopter         |        |         |            |     |
|          | Gyroplane          |        |         |            |     |
|          | Airship            |        |         |            |     |
|          | Balloon            |        |         |            |     |

## TABLE B-23. Portion of total hours logged during the last 12 months.

#### Local VFR pleasure flights

|               | Target | Private | Commercial | ATP |
|---------------|--------|---------|------------|-----|
| Zero          | 10%    | 9%      | 18%        | 61% |
| Less than 25% | 38%    | 36%     | 50%        | 33% |
| 25% to 50%    | 18%    | 19%     | 14%        | 3%  |
| 50% to 75%    | 16%    | 17%     | 11%        | 2%  |
| 75% to 100%   | 17%    | 19%     | 9%         | 2%  |

### Cross-country VFR pleasure flights

| Zero   |           | Zero                      | Target | Private | Commercial | ATP      |
|--|-----------|---------------------------|--------|---------|------------|----------|
| 25% to 50%   28%   30%   18%   3%   50% to 75%   14%   15%   99%   17%   75% to 100%   77%   77%   57%   19%   75% to 100%   77%   77%   57%   19%   77%   57%   19%   77%   77%   57%   19%   77%   77%   77%   77%   19%   77%   77%   77%   77%   77%   19%   77%   19%   75% to 100%   47%   47%   47%   47%   47%   77%   47%   47%   77%   19%   75% to 100%   47%   4 |           | Less than 25%             | 33%    | 33%     |            | /1%      |
| 15%   9%   19%   19%   75% to 100%   7%   7%   55%   19%   75% to 100%   7%   7%   55%   19%   19%   19%   12%   14%   15%   19%   21%   14%   25% to 50%   9%   10%   11%   29%   50% to 75%   4%   4%   4%   7%   19%   75% to 100%   4%   4%   4%   7%   19%   75% to 50%   55%   55%   55%   54%   64%   55%   64%   55%   55%   54%   64%   64%   25% to 50%   15%   166%   15%   83%   50% to 75%   8%   99%   99%   29%   75% to 100%   38%   32%   15%   15%   33%   32%   15%   15%   32%   15%   15%   33%   32%   15%   15%   32%   15%   15%   33%   32%   15%   15%   32%   15%   15%   33%   32%   15%   15%   32%   15%   15%   32%   15%   15%   32%   15%   15%   15%   32%   15%   |           | 25% to 50%                | 28%    | 30%     |            | 20/      |
| Topic  |           | 50% to 75%                | 14%    | 15%     | 10/0       | 10/      |
| Cross-country VFR business flights   Zero  |           | 75% to 100%               | 7%     | 7%      | 5%         | 1%<br>1% |
| Zero   | Cross-co  |                           |        |         |            | 170      |
| Less than 25%  |           |                           |        | C 40 /  |            |          |
| 25% to 50% 9% 10% 11% 2% 50% to 75% 4% 4% 4% 7% 19% 75% to 100% 4% 4% 4% 7% 19% 75% to 100% 4% 4% 4% 7% 4% 4% 7% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 4% 7% 49% 4% 25% to 50% 15% 55% 55% 54% 64% 50% to 75% 8% 9% 9% 9% 2% 75% to 100% 9% 7% 13% 6% 15% 16% 15% 8% 25% to 50% 55% 55% 54% 64% 50% to 75% 50% 50% 55% 55% 54% 64% 50% to 75% 50% 50% 55% 55% 54% 64% 50% to 75% 50% 55% 55% 99% 4% 50% to 75% 50% 55% 55% 99% 4% 50% to 75% 50% 55% 55% 99% 4% 50% to 75% 50% 50% 55% 55% 99% 49% 50% to 75% 50% 50% 50% 50% 50% 50% 50% 50% 50% 5   |           | Loss than 250/            | 65%    | 64%     | 55%        | 79%      |
| 50% to 75%   |           | 250/ to 500/              | 18%    | 19%     | 21%        | 14%      |
| Training or proficiency flights  Zero 12% 13% 10% 21%  Less than 25% 55% 55% 54% 64% 25% to 50% 15% 16% 15% 8% 50% to 75% 8% 9% 9% 2% 75% to 100% 9% 7% 13% 66%  IFR flights for business purposes  Zero 81% 83% 64% 51% 8% 25% to 50% 55% 5% 5% 9% 44% 50% to 75% 9% 8% 15% 8% 25% to 100% 9% 8% 15% 8% 25% to 50% 5% 5% 9% 44% 50% to 75% 2% 11% 4% 5% 75% to 100% 33% 33% 8% 32%  IFR flights for personal purposes  Zero 70% 76% 57% 81% Less than 25% 19% 15% 32% 16% 25% to 50% 7% 7% 7% 2% 50% to 75% 2% 2% 2% 2% 10% Cess than 25% 19% 15% 32% 16% 25% to 50% 7% 7% 7% 7% 2% 50% to 75% 29% 2% 2% 2% 10% 50% to 75% 9% 9% 9% 3% 3% 3% 3%  Commercial flight crew member  Zero 95% 95% 74% 19% Less than 25% 19% 15% 33% 3% 3% 50% to 75% 00% 0% 3% 1% 50% to 75% 00% 0% 3% 3% 3% 75% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% Less than 25% 3% 3% 5% 8% 25% to 50% 19% 11% 11% 5% 5% 50% to 75% 2% 2% 2% 7% 3%  |           | 23% to 50%                |        | 10%     | 11%        | 2%       |
| Training or proficiency flights   Zero   |           | 750/ to /5%               | 4%     | 4%      | 7%         | 1%       |
| Zero   |           | 75% to 100%               | 4%     | 4%      | 7%         | 4%       |
| Less than 25% 55% 55% 54% 64% 25% to 50% 15% 15% 16% 15% 8% 50% to 75% 88% 9% 9% 9% 2% 75% to 100% 9% 7% 13% 66%   IFR flights for business purposes  Zero 81% 83% 64% 51% 8% 25% to 50% 5% 9% 8% 15% 8% 5% 9% 9% 4% 50% to 75% 22% 11% 44% 55% 55% to 100% 33% 33% 8% 32%   IFR flights for personal purposes  Zero 70% 76% 57% 81% 25% to 50% 5% 9% 4% 50% to 75% 29% 11% 45% 32% 16% 25% to 50% 75% 29% 19% 45% 50% 16% 25% to 50% 75% 29% 20% 20% 16% 25% to 50% 75% 29% 20% 20% 16% 25% to 50% 75% 29% 29% 20% 20% 11% 75% to 100% 20% 11% 75% to 100% 20% 11% 75% to 100% 20% 11% 20% 00%   Commercial flight crew member  Zero 95% 95% 74% 19% 20% 20% 20% 20% 20% 10% 50% to 75% 00% 00% 00% 33% 33% 35% 35% 33% 55% to 100% 40% 33% 34% 75% to 100% 40% 33% 34% 55% to 50% 00% 00% 30% 33% 75% to 100% 40% 30% 30% 55% 88% 25% to 50% 10% 10% 10% 10% 50% 55% 55% 50% to 75% 20% 20% 20% 75% 50% 50% 50% 50% 10% 10% 10% 55% 55% 50% to 75% 20% 20% 20% 76% 33% 55% 58% 50% to 75% 20% 20% 20% 76% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33%  | Training  | or proficiency flights    |        |         |            |          |
| Less than 25% 55% 55% 54% 64% 25% to 50% 15% 15% 16% 15% 8% 50% to 75% 88% 9% 9% 9% 2% 75% to 100% 9% 7% 13% 66%   IFR flights for business purposes  Zero 81% 83% 64% 51% 8% 25% to 50% 5% 9% 8% 15% 8% 5% 9% 9% 4% 50% to 75% 22% 11% 44% 55% 55% to 100% 33% 33% 8% 32%   IFR flights for personal purposes  Zero 70% 76% 57% 81% 25% to 50% 5% 9% 4% 50% to 75% 29% 11% 45% 32% 16% 25% to 50% 75% 29% 19% 45% 50% 16% 25% to 50% 75% 29% 20% 20% 16% 25% to 50% 75% 29% 20% 20% 16% 25% to 50% 75% 29% 29% 20% 20% 11% 75% to 100% 20% 11% 75% to 100% 20% 11% 75% to 100% 20% 11% 20% 00%   Commercial flight crew member  Zero 95% 95% 74% 19% 20% 20% 20% 20% 20% 10% 50% to 75% 00% 00% 00% 33% 33% 35% 35% 33% 55% to 100% 40% 33% 34% 75% to 100% 40% 33% 34% 55% to 50% 00% 00% 30% 33% 75% to 100% 40% 30% 30% 55% 88% 25% to 50% 10% 10% 10% 10% 50% 55% 55% 50% to 75% 20% 20% 20% 75% 50% 50% 50% 50% 10% 10% 10% 55% 55% 50% to 75% 20% 20% 20% 76% 33% 55% 58% 50% to 75% 20% 20% 20% 76% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 55% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33% 50% 50% to 75% 20% 20% 20% 76% 33%  |           | Zero                      | 12%    | 13%     | 10%        | 21%      |
| 25% to 50%   |           | Less than 25%             | 55%    | 55%     | 54%        | 64%      |
| 50% to 75% 8% 9% 9% 9% 2% 75% to 100% 9% 7% 13% 66%  IFR flights for business purposes  Zero 81% 83% 64% 51% 8% 25% to 50% 5% 5% 9% 4% 50% to 75% 2% 11% 4% 5% 75% to 100% 3% 3% 8% 32%  IFR flights for personal purposes  Zero 70% 76% 57% 81% 16% 25% to 50% 75% 19% 15% 32% 16% 25% to 50% 75% 2% 100% 25% to 50% 76% 76% 57% 81% 6% 25% to 50% 76% 76% 76% 26% 16% 25% to 50% 76% 76% 76% 25% 100% 20% 20% 20% 20% 20% 20% 20% 20% 20%  |           | 25% to 50%                | 15%    | 16%     | 15%        | 8%       |
| T5% to 100%   9%   7%   13%   6%   |           | 50% to 75%                | 8%     | 9%      | 9%         | 2%       |
| TFR flights for business purposes  |           | 75% to 100%               | 9%     | 7%      | 13%        | 6%       |
| Zero         81%         83%         64%         51%           Less than 25%         9%         8%         15%         8%           25% to 50%         5%         5%         9%         4%           50% to 75%         2%         1%         4%         5%           75% to 100%         3%         3%         8%         32%           IFR flights for personal purposes           Zero         70%         76%         57%         81%           Less than 25%         19%         15%         32%         16%           25% to 50%         7%         7%         7%         2%           50% to 75%         2%         2%         2%         1%           75% to 100%         2%         2%         2%         1%           25% to 50%         1%         1%         6%         2%           25% to 50%         0%         0%         3%         1%           50% to 75%         0%         0%         3%         1%           50% to 100%         2%         95%         74%         19%           Less than 25%         1%         1%         0%         2%           25% to 100%  | IFR flio  |                           |        |         |            | 070      |
| Less than 25% 9% 8% 15% 8% 25% to 50% 50% 5% 5% 9% 4% 50% to 75% 2% 1% 4% 5% 75% to 100% 3% 3% 8% 32%   IFR flights for personal purposes  Zero 70% 76% 57% 81% 16% 25% to 50% 7% 29% 2% 1% 2% 1% 2% 0% 6% 25% to 50% 100% 2% 1% 16% 25% to 50% 100% 2% 1% 2% 1% 2% 0% 0%   Commercial flight crew member  Zero 95% 95% 74% 19% 1% 6% 2% 25% to 50% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 0% 3% 14% 75%   Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% Less than 25% 3% 3% 5% 8% 25% to 50% 1% 1% 1% 5% 5% 5% 50% to 75% 2% 2% 2% 7% 3% 50% to 75% 2% 2% 7% 3%   | 11,000    |                           | 010/   | 0307    |            |          |
| 25% to 50% 5% 5% 5% 9% 4% 50% to 75% 2% 1% 4% 5% 75% to 100% 3% 3% 8% 32%  IFR flights for personal purposes  Zero 70% 76% 57% 81%  Less than 25% 19% 15% 32% 16% 25% to 50% 7% 2% 2% 2% 2% 1% 2% 0%  Commercial flight crew member  Zero 95% 95% 74% 19%  Less than 25% 10% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 3% 11% 50% to 75% 0% 0% 0% 0% 3% 14% 50% to 75% 0% 0% 0% 0% 3% 14% 50% to 75% 0% 0% 0% 0% 3% 14% 50% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% 2% 5% to 50% 1% 1% 1% 55% 5% 8% 25% to 50% 1% 1% 1% 1% 5% 5% 5% 5% 50% to 75% 2% 2% 2% 7% 33%  |           | Loss than 250/            | 81%    | 83%     | 64%        | 51%      |
| 50% to 75% 2% 1% 4% 5% 75% to 100% 3% 3% 3% 8% 32%   IFR flights for personal purposes  Zero 70% 76% 57% 81% 16% 25% to 50% 77% 70% 70% 70% 70% 20% 50% to 75% 20% 20% 20% 10% 75% to 100% 20% 10% 10% 20% 10% 25% to 50% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 10% 20% 20% 20% 20% 20% 20% 20% 20% 20% 2  |           | 250/ to 500/              | 9%     | 8%      | 15%        | 8%       |
| TFR flights for personal purposes   Zero   |           | 25% to 50%                | 5%     | 5%      | 9%         | 4%       |
| TFR flights for personal purposes   Zero   |           | 50% to /5%                | 2%     | 1%      | 4%         | 5%       |
| Zero       70%       76%       57%       81%         Less than 25%       19%       15%       32%       16%         25% to 50%       7%       7%       7%       2%         50% to 75%       2%       2%       2%       1%         75% to 100%       2%       1%       2%       0%         Commercial flight crew member         Zero       95%       95%       74%       19%         Less than 25%       1%       1%       6%       2%         25% to 50%       0%       0%       3%       1%         50% to 75%       0%       0%       3%       3%         75% to 100%       4%       3%       14%       75%         Other (N approximately 169 to 246)         Zero       89%       90%       67%       62%         Less than 25%       3%       3%       5%       8%         25% to 50%       1%       1%       1%       5%       5%         50% to 75%       2%       2%       2%       7%       3%  |           | /5% to 100%               | 3%     | 3%      | 8%         | 32%      |
| Less than 25% 19% 15% 32% 16% 25% to 50% to 75% 7% 7% 7% 2% 50% to 75% 2% 2% 2% 2% 1% 75% to 100% 2% 1% 2% 0%  Commercial flight crew member  Zero 95% 95% 74% 19%  Less than 25% 1% 1% 6% 2% 25% to 50% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% 2% 25% to 50% 1% 1% 1% 5% 5% 5% 50% to 75% 2% 2% 7% 3%  | IFR fligh | its for personal purposes |        |         |            |          |
| Less than 25% 19% 15% 32% 16% 25% to 50% to 75% 7% 7% 7% 2% 50% to 75% 2% 2% 2% 2% 1% 75% to 100% 2% 1% 2% 0%  Commercial flight crew member  Zero 95% 95% 74% 19%  Less than 25% 1% 1% 6% 2% 25% to 50% 0% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% 2% 25% to 50% 1% 1% 1% 5% 5% 5% 50% to 75% 2% 2% 7% 3%  |           | Zero                      | 70%    | 76%     | 57%        | 81%      |
| 25% to 50%   |           | Less than 25%             | 19%    | 15%     | 32%        | 16%      |
| 50% to 75% 2% 2% 2% 1% 2% 0%  75% to 100% 2% 1% 2% 0%  Commercial flight crew member  Zero 95% 95% 74% 19%  Less than 25% 1% 1% 1% 6% 2%  25% to 50% 0% 0% 3% 1%  50% to 75% 0% 0% 0% 3% 3% 3%  75% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62%  Less than 25% 3% 3% 5% 8%  25% to 50% 1% 1% 1% 5% 5% 5%  50% to 75% 2% 2% 7% 3%   |           | 25% to 50%                | 7%     | 7%      | 7%         | 20/2     |
| 75% to 100%       2%       0%         Commercial flight crew member         Zero       95%       95%       74%       19%         Less than 25%       1%       1%       6%       2%         25% to 50%       0%       0%       3%       1%         50% to 75%       0%       0%       3%       3%         75% to 100%       4%       3%       14%       75%         Other (N approximately 169 to 246)         Zero       89%       90%       67%       62%         Less than 25%       3%       3%       5%       8%         25% to 50%       1%       1%       5%       5%         50% to 75%       2%       2%       7%       3%   |           | 50% to 75%                | 2%     | 2%      | 2%         | 1%       |
| Commercial flight crew member           Zero         95%         95%         74%         19%           Less than 25%         1%         1%         6%         2%           25% to 50%         0%         0%         3%         1%           50% to 75%         0%         0%         3%         3%           75% to 100%         4%         3%         14%         75%           Other (N approximately 169 to 246)           Zero         89%         90%         67%         62%           Less than 25%         3%         3%         5%         8%           25% to 50%         1%         1%         5%         5%           50% to 75%         2%         2%         7%         3%   |           | 75% to 100%               | 2%     | 1%      | 2%         | 0%       |
| Zero       95%       95%       74%       19%         Less than 25%       1%       1%       6%       2%         25% to 50%       0%       0%       3%       1%         50% to 75%       0%       0%       3%       3%         75% to 100%       4%       3%       14%       75%         Other (N approximately 169 to 246)         Zero       89%       90%       67%       62%         Less than 25%       3%       3%       5%       8%         25% to 50%       1%       1%       5%       5%         50% to 75%       2%       2%       7%       3%   | Commerc   |                           |        |         |            |          |
| Less than 25% 1% 1% 6% 2% 25% to 50% 0% 0% 3% 1% 50% to 75% 0% 0% 0% 3% 3% 3% 75% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62% Less than 25% 3% 3% 5% 8% 25% to 50% 1% 1% 1% 5% 5% 5% 5% 50% to 75% 2% 2% 7% 3%   |           | - 0                       | 050/   | 0.50/   | 740/       | 100/     |
| 25% to 50%   |           | Less than 25%             | 10/    | 93%     |            | 19%      |
| 50% to 75% 0% 0% 3% 3% 75% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62%  Less than 25% 3% 3% 5% 8% 25% to 50% 1% 1% 1% 5% 5% 5% 5% 50% to 75% 2% 2% 7% 3%   |           | 25% to 50%                | 170    | 1%      | 6%         | 2%       |
| 75% to 100% 4% 3% 14% 75%  Other (N approximately 169 to 246)  Zero 89% 90% 67% 62%  Less than 25% 3% 3% 5% 8%  25% to 50% 1% 1% 5% 5%  50% to 75% 2% 2% 7% 3%   |           | 50% to 75%                |        | 0%      |            | 1%       |
| Other (N approximately 169 to 246)         Zero       89%       90%       67%       62%         Less than 25%       3%       3%       5%       8%         25% to 50%       1%       1%       5%       5%         50% to 75%       2%       2%       7%       3%  |           | 75% to 100%               |        | 0%      |            | 3%       |
| Zero     89%     90%     67%     62%       Less than 25%     3%     3%     5%     8%       25% to 50%     1%     1%     5%     5%       50% to 75%     2%     2%     7%     3%   |           | 7370 to 10070             | 4%     | 3%      | 14%        | 75%      |
| Less than 25%       3%       3%       5%       8%         25% to 50%       1%       1%       5%       5%         50% to 75%       2%       2%       7%       3%  | Other (N  |                           |        |         |            |          |
| 25% to 50%   |           | Zero                      | 89%    | 90%     | 67%        | 62%      |
| 50% to 75%   |           | Less than 25%             | 3%     | 3%      | 5%         | 8%       |
| 50% to 75%   |           | 25% to 50%                | 1%     | 1%      | 5%         | 5%       |
| 75% to 100%  |           | 50% to 75%                | 2%     | 2%      | 7%         | 3%       |
|  |           | 75% to 100%               | 5%     | 3%      | 17%        | 21%      |

TABLE B-24. In the past 12 months, how many times have you...

|           | ight in a single-engine | Target | Private | Commercial | ATP |
|-----------|-------------------------|--------|---------|------------|-----|
|           | 7ero                    | 35%    |         |            |     |
|           |                         | 8%     |         |            |     |
|           |                         | 12%    |         |            |     |
|           |                         | 10%    |         |            |     |
|           | 1                       | 8%     | 8%      | 7%         | 2%  |
|           |                         | 27%    |         |            |     |
| Flown VF  | R under a 1500 AGL ce   | eiling |         |            |     |
|           |                         | 55%    | 57%     | 47%        | 70% |
|           | 1                       | 14%    | 13%     | 12%        | 6%  |
|           |                         | 11%    |         |            |     |
|           | 3                       | 5%     | 5%      | 5%         | 3%  |
|           | 4                       | 2%     | 2%      |            | 1%  |
|           | 5 or more               | 13%    | 11%     | 23%        | 16% |
| Requested | a Special VFR clearan   |        |         |            |     |
|           | Zero                    | 84%    | 86%     | 75%        | 84% |
|           | 1                       | 9%     | 8%      | 10%        | 5%  |
|           | 2                       | 2%     | 2%      | 6%         | 4%  |
|           | 3                       | 2%     | 1%      | 3%         | 2%  |
|           | 4                       | 1%     | 1%      | 1%         | 2%  |
|           | 5 or more               | 2%     | 2%      | 5%         | 4%  |
| Flown VF  | R over the top          |        |         |            |     |
|           |                         | 72%    |         |            |     |
|           | 1                       | 10%    | 11%     | 9%         | 5%  |
|           | 2                       | 9%     | 9%      | 8%         | 5%  |
|           | 3                       | 4%     | 3%      | 5%         | 2%  |
|           | 4                       | 2%     | 2%      | 2%         | 19  |
|           | 5 or more               | 5%     | 3%      | 14%        | 8%  |
| Flown in  | instrument meteorolog   |        |         |            |     |
|           | Zero                    | 55%    | 63%     | 31%        | 6%  |
|           | 1                       | 8%     | 7%      | 7%         | 29  |
|           | 2                       | 5%     | 5%      | 7%         | 29  |
|           |                         | 40/    |         |            | 20. |

 3
 4%
 3%
 6%
 2%

 4
 3%
 3%
 4%
 1%

 5 or more
 25%
 19%
 46%
 87%

# TABLE B-25. Source of initial flight training.

### Where did you receive the majority of training for your first pilot certificate

|                          | Target | Private | Commercial | ATP |
|--------------------------|--------|---------|------------|-----|
| Military flying school   | 11%    | 6%      | 17%        | 36% |
| Civilian flying school   | 16%    | 16%     | 19%        | 19% |
| Collegiate flight school | 6%     | 5%      | 10%        | 11% |
| CFI at a FBO             | 42%    | 46%     | 33%        | 19% |
| CFI at a flying club     | 9%     | 10%     | 8%         | 6%  |
| Independent CFI          | 15%    | 17%     | 12%        | 8%  |
| Other                    | 0%     | 0%      | 20%        | 1%  |

## TABLE B-26. Membership in flying organizations.

### Belong to flying organizations

|                             | Target | Private | Commercial | ATP |
|-----------------------------|--------|---------|------------|-----|
| AOPA                        | 70%    | 70%     | 66%        | 31% |
| EAA                         |        |         |            |     |
| Vocation                    |        |         |            |     |
| Aircraft owner's club       |        |         |            |     |
| Aviation trade organization |        |         |            |     |
| Ninety-nines                | 2%     | 2%      | 3%         | 1%  |
| A flying club               | 19%    | 17%     | 20%        | 6%  |
| Other                       | 10%    | 9%      | 15%        | 20% |

# TABLE B-27. Use of aviation-related periodicals.

### Flying magazines read regularly

|                          | Target      | Private | Commercial | ATP |
|--------------------------|-------------|---------|------------|-----|
| FAA Aviation Safety      | 16%         | 16%     | 20%        | 14% |
| AOPA Pilot               | 73%         | 74%     | 72%        | 38% |
| Flying                   |             |         |            |     |
| Air Progress             | 5%          | 5%      | 4%         | 5%  |
| Aviation Safety          | 22%         | 22%     | 24%        | 17% |
| Aviation Consumer        | 8%          | 8%      | 6%         | 5%  |
| EAA Sport Aviation       | 21%         | 20%     | 20%        | 12% |
| Business & Commercial Av | iation . 5% | 7%      | 13%        | 30% |
| Plane & Pilot            |             |         |            |     |
| Professional Pilot       |             |         |            |     |
| Other                    |             |         |            |     |

## TABLE B-28. Education.

#### Highest education level completed

|                                     |     |     | Commercial |     |
|-------------------------------------|-----|-----|------------|-----|
| Grade school                        |     |     |            |     |
| High school 21%                     | 22% | 15% | 9%         |     |
| Associate degree (2 years' college) | 16% | 17% | 20%        | 19% |
| College graduate (B.A., B.S.)       | 35% | 34% | 41%        | 55% |
| Master's degree                     | 18% | 17% | 17%        | 17% |
| Professional or academic doctorate  |     |     |            |     |
| (M.D., J.D., Ph.D.)                 | 10% | 10% | 7%         | 1%  |

# TABLE B-29. Departure point for flights.

#### Region you usually take-off from

|                    | Target | Private | Commercial | ATP  |
|--------------------|--------|---------|------------|------|
| Alaska             | 3%     | 3%      | 3%         | 1%   |
| Central            | 6%     | 6%      | 7%         | 3%   |
| Eastern            | 14%    | 13%     | 15%        | 16%  |
| Great Lakes        | 22%    | 22%     | 17%        | 17%  |
| New England        | 6%     | 5%      | 5%         | 3%   |
| Northwest-Mountain | 11%    | 12%     | 7%         | 9%   |
| Southern           | 120/   | 12%     | 18%        | 17%  |
| Southwestern       | 120/   | 12%     | 14%        | 15%  |
| Southwestern       | 1270   | 150/    | 150/       | 10%  |
| Western Pacific    | 13%    | 13%     | 1370       | 19/0 |

## TABLE B-30. Gender.

#### Gender

|        | Target | Private | Commercial | ATP |
|--------|--------|---------|------------|-----|
| Male   | 94%    | 93%     | 94%        | 96% |
| Female |        |         |            |     |